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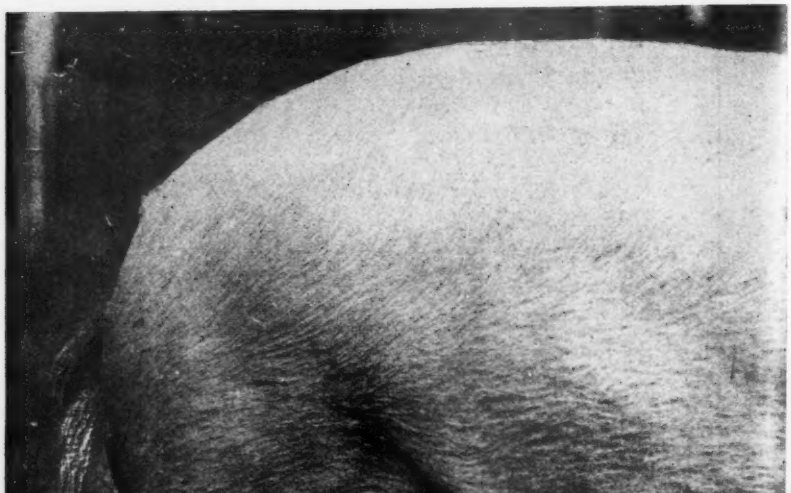

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Present Status of the Live Stock Industry*

By H. R. SMITH, Chicago Live Stock Commissioner, Chicago Live Stock Exchange

THE topic merits a comprehensive study of conditions surrounding our live stock industry—conditions which have prevailed in the past, affecting supply and demand, and conditions as they exist now.

Probably no industry in the United States has been subjected to greater vicissitudes than has our live stock industry; there are so many circumstances often unforeseen which affect it vitally, both as to production and consumption. Beef production is frequently cut down by an unusually severe winter on the range; mutton and pork by cold ,damp weather during the lambing and farrowing seasons; and dairy products by high priced labor. All varieties of live stock production are curtailed by summer drought, high priced feed and disease outbreaks. The consumption of the product is seriously affected by social and industrial conditions, both at home and to some extent by those abroad. A strike involving millions of workers, heavy meat consumers, may be called over night. With no work and with wages discontinued, meat is the first article of food to be eliminated from the table of the striker and his family.

The live stock industry in the United States has had a remarkable growth. We are comparatively young as nations go, but we had in the United States, even before the war, half as many sheep, nearly as many cattle, as many hogs and more horses than were to be found in all the nations of Europe, exclusive of Russia. This remarkable development has been made possible because of our large area of land, well adapted to the growing of feed for live stock. Then, too, meat has been one of our most profitable export commodities, and it has been handled efficiently. Our people have shown enterprise in securing good seed stock from Europe with which to start the improvement in quality which has continued to the present date. We have been both alert and diligent in developing our herds and flocks.

No attempt will be made to review the evolution of the live stock industry in the United States. There have been some recent developments, however, that are unusual and of particular interest because of their bearing on the future of this great industry.

There has never been a period in our history in which conditions surrounding the live stock industry, as affecting both supply and demand, have so changed as during the past ten years. Forty or fifty years ago a large proportion of the cattle fattened in the Middle West were raised there. During later years a large percentage of the cattle fattened on our farms has been raised in the range states.

This system of breeding beef cattle in the West, to be later finished for market on corn belt farms, became an established custom through the rise in value of farm lands and through the development of large herds on government land where grass was available during the summer at practically no cost, and where sufficient hay could be

*Paper read at the 23rd annual meeting of the U. S. Live Stock San. Assn., Chicago, Dec., 1919.

put up to sustain the cattle during the times of heavy snows. With the development of the ranch system in the West, the farmer found that he could buy western feeding cattle at a lower cost than they could be reared on his farm. The result was that herds of beef-bred cows kept on farms for raising calves disappeared almost entirely, and were later replaced, in most instances, by cows possessing more of the dairy qualities. On the higher priced corn lands of Illinois and Iowa nearly all the farms are devoted to the production of crops, with live stock operations confined largely to winter feeding.

Land Cultivation Disorganizes Old System

There has occurred during recent years a most remarkable transformation. Western land formerly used for grazing purposes has been converted into immense tracts, now devoted to the growing of wheat and other small grain. According to government records, 85,673,396 acres of public domain passed to private ownership during the six-year period, 1909 to 1914 inclusive, and this movement has continued until there is now but a comparatively small acreage suitable for cultivation that is not operated as farm and pasture land. Nearly all the large ranch outfits discontinued operations, resulting in a partial disorganization of an established system of cattle and sheep production in which it has been the practice to depend almost entirely upon the West as a breeding ground.

In view of this rapid settlement of western lands it is not surprising that the total number of beef cattle in the United States declined 30 per cent during the period 1907 to 1914, and that prices advanced 55 per cent. The advance in the price of beef cattle was correspondingly greater than the decline in number, because our population increased at the rate of approximately 2 per cent a year during the period mentioned. The next period of five years, January 1, 1914, to January 1, 1919, was in marked contrast. Government statistics show an increase of 24 per cent in the number of beef cattle in the United States more than double our increase in population during that time. These estimates show that January 1, 1919, we had a total of 67,866,000 cattle of all kinds in the United States, which was only 6 per cent less than on January 1, 1907—the largest number on record. Notwithstanding this 24 per cent increase in number from January 1, 1914, to January 1, 1919—more than twice our increase in population—the price of beef cattle on the Chicago market increased 70 per cent during that period. In fact with the exception of the years 1911 and 1915, the average price per hundred of native beef steers at the Chicago market has advanced each succeeding year for the past seventeen years, as shown by the following statistics compiled by the Chicago *Drover's Journal*:

1903	$4.80	1909	$6.35	1915	$ 8.40
1904	4.95	1910	6.80	1916	9.50
1905	5.05	1911	6.40	1917	11.60
1906	5.30	1912	7.75	1918	14.65
1907	5.80	1913	8.25	1919	15.55 (1st 11 months)
1908	6.10	1914	8.65		

During the years immediately preceding the outbreak of the war in 1913, our imports of beef exceeded our exports. The heavy shipments of beef to Europe during the war was unquestionably a factor in stimulating prices at that time. However, since the signing of the armistice, which not only served to cancel practically all future orders for the needs of the allied armies in Europe, but which also caused to be released numerous boats for carrying the surplus of Australian and South American beef to Europe, the price still remains high. The armistice was signed more than a year ago, yet top cattle are bringing today $20.50 per hundred, equaling the highest prices on record which were obtained last spring. The average price of native beef steers sold on the Chicago market during the first eleven months of 1919 was $15.55 per hundred, as compared with $14.65 per hundred for the year 1918, or six per cent more.

Contrary to the forecasts of many people, the number of cattle marketed during the year 1919 has been considerably less than in 1918. During the first nine months of the present year, the decrease in the receipts of cattle at the Chicago market was 237,404 head as compared with the first nine months in 1918. There was a similar decrease at all Middle West markets, amounting to a total of nearly a million head. This would indicate that the supply of cattle in the country is much lower than last year, due to extreme drought in the Northwest and in other sections of the West. The beef cattle nursery of the United States has been seriously depleted. Notwithstanding the great decline in our

beef export trade, the outlook is favorable for high prices in the immediate future. Our home demand for the product is, of course, the large factor in maintaining high prices. So long as labor is well employed and wages are high, there will be a good demand for meat. While the price on this article of diet seems high to the consumer, it is not out of proportion with many other staple foods. Our whole scale of prices has advanced during recent years, and it is not unreasonable to think that there will be a readjustment and that this scale of prices will have a downward trend, in which case meat may decline with that of other commodities. It would be very surprising if there were not a downward trend.

Inflation of Currency Affects Market

It is apparent that the inflation of the currency in Europe as well as in America has been the principal factor in causing high prices on meat as of all other commodities, especially during the past four years. January 1, 1914, the per capita circulation in the United States was $34.11 and October 1, 1914, $37.15. Since that time it has steadily increased until December 1, 1918, when it was $56.23. October 1, 1919, it had dropped back to $54.58. The war has doubtless been responsible for a large part of our increase since 1914. It has been stated that a billion dollars in gold has come from Europe to the United States as a result of the balance of trade in our favor in the purchase of munitions, foods, etc. The large issue of bonds for our needs to conduct the war has added further to the volume of currency in circulation. However, the inflation of the currency began several years before war was declared. Statistics show that the annual production of gold in the world was for several years preceding the war twice as great as the increase in the population of the world, due to the opening of new mines, such as those in South Africa, and to the discovery of new methods of extracting gold from ores of lower value. A large part of this increased supply of gold was coined into money, serving to enlarge the volume of currency in all countries to a greater or less degree. Much of this increase in the supply of gold has come to the United States since the beginning of hostilities.

Our currency and credit facilities were further augmented during the year 1914, by the establishment of the Federal Reserve Banking System, through which it has been possible to issue paper money in lieu of notes received; whereas before the establishment of the Federal Reserve Banks in 1914, paper money issued had to be backed by its face value in gold or silver, or government bonds. It is now possible to issue paper money backed by commodities. For example, a farmer's note amounting to $10,000.00 for the purchase of live stock can be sent by a member bank to the Federal Reserve Bank and $10,000.00 of paper money can be issued in lieu of this note, plus $4,000.00 in gold reserve. The fact that the Federal Reserve banks of the country are now near their legal limits in the making of loans is proving that this new departure in financing business has contributed materially to the increase in money and credits and has stimulated prices.

As practically no further inflation of the currency can result from the working of the Federal Reserve system of banking, and as the yearly production of gold is now on the decline, due to the high cost of labor and equipment in proportion to the price of the product, which in the case of gold remains stationary, there is not likely to be any further inflation. On the contrary it would seem reasonable to expect a gradual deflation and a receding from the present scale of values.

Fluctuations of the Hog Market

The hog market has been subject to fluctuations in prices from month to month and from year to year. The largest advance came after the United States entered the war. Twenty years ago, or during the year 1899, the average price of hogs at the Chicago market was $4.95 per hundred; for the year 1915, $7.10 per hundred; 1916, $9.60 per hundred; 1917, $15.10 per hundred; 1918, $17.40, and for the first eleven months of 1919, $18.40 per hundred. Notwithstanding the fact that our exports of pork and pork products increased from 1,748,354,784 pounds during the first nine months of 1918, to 2,199,856,955 pounds during the first nine months of 1919, the top price of hogs in Chicago is today $14.60 per hundred as compared with $20.95, the record price made in September, 1918.

The estimated number of hogs in the

United States January 1, 1919, was 75,587,000 as compared with 70,978,000 January 1, 1918. The receipt of hogs at the Chicago market during the first eleven months of 1919 was 7,629,165 as compared with 7,614,391 for the first eleven months of 1918, much in excess of the receipts for 1917. By the end of 1919 we will have exported approximately 25 per cent of our total production of pork for the year; whereas our exports of beef will represent but 5 per cent of our total output for the year. There is reason to believe that Europe will continue to take our surplus of pork for some time, as the best statistics available show that there were at the close of the war 53 per cent less hogs in Europe, exclusive of Russia, then preceding the war. This deficiency of hogs in Europe is seven million more than the increase of hogs in the United States, Canada, Australia and Argentine. To be sure, hogs multiply very rapidly, and we may expect that much of the present shortage of hogs in Europe will be overcome in the next few years.

The greatest handicap in getting our surplus of pork to Europe now is the high rate of exchange. If substantial loans or credits could be granted to European buyers, this handicap would be largely overcome to the benefit of all hog raisers of the United States. In supplying the people of Europe with their requirements for pork, we have little competition. Argentine produces very little pork. The adaptability of the United States for the production of corn makes this by far the greatest pork-producing country in the world. Nothing should be left undone to give us an unrestricted outlet for our surplus product. It is greatly to be hoped that the peace treaty will be signed without further delay to permit this needed financing of European buyers.

Sheep-Raising Increasing

The average price of fat lambs on the Chicago market was $10.75 per hundred for the year 1916, $15.60 for the year 1917, $16.60 for 1918, and $16.95 for the first ten months of 1919. The total receipts of sheep at the Chicago market for the first ten months of 1919 was 21,858,613 as compared with 18,258,679 for the same period in 1918. Top lambs are now bringing $14.65 per hundred. While there has been an increase in the number of sheep in the United States during the past two years, we still have considerably less than ten years ago. The flocks of Montana and other western states have suffered depletion through the farming of what was formerly grazing land. There is now a growing interest in sheep raising under farm conditions, and if the price of mutton and wool is satisfactory, we may expect to see many more small flocks throughout the country in the future. It is greatly to be hoped that with this increase in number there will also be an improvement in quality and condition with more pains taken to castrate the lambs. Native lambs are not up to western standards on the average.

Under good care a flock of from fifty to one hundred ewes on the average farm will bring net returns that will compare favorably with any other class of live stock. Their adaptability to consume weeds and to pick up waste from stubble fields, and their capacity to produce a finished meat product from grass and roughage with a minimum amount of grain, entitles them to much more favorable consideration on our farms than has been accorded them in the past when grain was relatively lower in price. In these days of scarcity of labor and high priced wages, with the limiting factor of farm production, a matter of labor to a larger degree than of land, the growing of more sheep will relieve the situation to some extent. These animals are capable of converting into meat and wool—both high priced products—not only grass and hay, but unhusked corn in the field, with a minimum of labor required for their care.

Dairy Industry Improves

The dairy industry of the United States has been in a very prosperous condition, due to the high prices which have prevailed for milk and its products. Net profits in the dairy business itself have been only fair because of the abnormally high prices of feed and the increased wages which have been paid. High priced labor cuts in heavier on the profits from dairying than in any other branch of the live stock industry, because more work is involved. Dairy farming, while intensive, leads to increased fertility and larger crops, which contribute much to the prosperity invariably found in a well-developed dairy section. Like many other American industries, dairying in the United States has

profited by the foreign demands for our products occasioned by the war. In 1914 our imports of dairy products exceeded our exports by 4,148,425 pounds of butter, and 61,356,736 pounds of cheese. We exported ,however, that year 16,209,082 pounds of condensed milk in excess of our imports. In 1915 our exports of dairy products exceeded our imports by 6,022,477 pounds of butter, 5,224,397 pounds of cheese, and 37,235,627 pounds of condensed milk. In 1916 our exports of dairy products exceeded our imports by 12,790,281 pounds of butter, 14,306,252 pounds of cheese, and 155,734,322 pounds of condensed milk. It is apparent from the above that in two years' time, 1914 to 1916, we changed from a country dependent to some extent upon foreign nations for dairy products to a nation having a good export trade, especially in condensed milk, which increased from four million pounds in 1914 to over one hundred and fifty-five million pounds in 1916. During the first nine months of 1917 we exported 270,816,995 pounds of condensed milk in excess of our imports; 1918, 378,375,253 pounds, and 1919, 603,236,378 pounds. This unusual demand from Europe for our condensed milk was an important factor in maintaining high prices on all dairy products during the period of the war. This trade is also no doubt responsible for the material increase in the number of dairy cows in the United States during the past four years. From 1907 to 1914 there was almost no variation in the number of dairy cows in the United States, the government estimates stipulating a little over twenty million each year. However, since the outbreak of the war in 1914, the number of milk cows in the United States has increased on an average of 2.5 per cent each year. Inasmuch as the countries of Europe have at the present time approximately 11 per cent less cattle, mostly the dairy type, than preceding the war, there will be a fair demand for condensed milk from the United States until the European herds are restored to normal. This will not take long. With a marked decline in our shipments of condensed milk to foreign countries which may come in the near future, a lower scale of prices is almost certain to follow. This will probably send to slaughter a large number of cows of mediocre capacity and of questionable economic value as milk producers. It does not mean, however, that the future of our dairy industry will be seriously affected, because we have increasing home requirements. The people in the United States are becoming more and more appreciative of the great food value of milk and its products. It will unquestionably result in the keeping of a much better class of cows for milking purposes, and in some sections cows that combine milk with beef production in a profitable manner.

Good Demand for Heavy Horses

No branch of the live stock industry has been subjected to more pronounced influences affecting supply and demand than the raising of horses. The growing popularity of trucks and tractors, not only in cities but on our farms, has injured the horse market to a large degree. The beginning of hostilities in Europe which took a surplus of horses off our hands has furnished considerable temporary relief. However, even with the great destruction of horse flesh caused by the war and the retention on the other side of our horses in service at the close of the conflict, there is still a surplus, in proportion to present demands, of the light weight and medium weight kind. There is not a surplus of heavy horses. On the contrary the demand for the type and the prices paid are very satisfactory. A large number of business institutions in our cities would purchase heavy horses in preference to trucks for various reasons, if it were possible to procure sufficient horses of that type at reasonable prices. Long distance hauling in our cities can be done more economically with trucks, and the prevailing high prices of feed have contributed to a large extent to make the horse less popular when trucks or tractors can be used to equal advantage. Much city hauling, however, can be done more economically with horses, and the heavy kind will continue to be in good demand at attractive prices.

The future of the live stock industry as a whole is promising. While we naturally expect a gradual lowering of prices during the readjustment period, by the restoration of the normal forces of production and, to some extent, by the deflation of our currency, there is reason to believe that agricultural commodities will decline less in price than will manufactured articles. Underproduction in articles of manufacture

has been without question a large factor in causing exorbitant prices on such commodities; whereas agricultural production has not diminished to any extent as a result of the war. It would seem, therefore, that with normal conditions restored we may expect a greater decline in prices on manufactured articles than on agricultural products. This will depend largely upon the future attitude of labor unions. If these are successful in reducing still further the number of hours of actual employment per day at increased wages, manufactured articles will continue high in price, or we will be buying heavily of products made with foreign labor to the detriment of our own prosperity.

Conditions with respect to agricultural production are very different now from the conditions which prevailed after the Civil War. At that time large areas of rich new lands were available for occupancy. The demands for food by an increasing population were met by the cultivation of more land. In the course of time overproduction in agricultural commodities took place. We now have comparatively little unoccupied land suitable for farming purposes. Increased requirements in the future must necessarily be met by the adoption of better methods with the land already occupied. The trend of our population has been toward the cities, increasing the requirements of consumers and making still more difficult the problem of adequate production, hence improved methods of farming, particularly in the care of live stock, will be a valuable aid to our country in the solution of a momentous question.

The situation with respect to limitations of the western range country for any further expansion need not cause any particular apprehension. While grain fields have supplanted large grazing areas, more roughage will be grown under dry farming methods and more cattle will eventually be found in these western states than were there under strict range conditions. Many more cattle will be raised as well as fattened on our farms. In round numbers, 60,000,000 tons of cornstalks are produced annually in our so-called corn belt states, and approximately 40,000,000 tons are not utilized as feed. This material, properly conserved and supplemented with a small quantity of clover or alfalfa hay, or a still smaller quantity of oilmeal or cottonseed meal, would keep in good breeding condition 10,000,000 cattle per year. A large tonnage of oat straw is annually produced, much of which could be fed to advantage. The chief handicap in breeding more beef cattle on our farms in the corn belt has been the high cost of summer as well as the winter maintenance of breeding cattle. The more recent practice of converting cornstalks without the grain into silage will materially reduce the cost of winter maintenance. Sweet clover pasture, which will support three times as many cattle to the acre as ordinary pasture will help to reduce the cost of maintaining breeding cattle on high priced land during the summer season and will make it profitable to use more of this high priced land for pasture purposes. We may reasonably expect in the future many more baby beeves raised and fattened on our corn belt farms. In our winter feeding operations the high prices of corn will force us to make larger use of good roughage, such as silage, alfalfa, and clover hay, with correspondingly less grain for the production of beef, mutton and dairy products.

The quality of our live stock has greatly improved during recent years. The International Live Stock Exposition now in progress, various state fairs and educational institutions have exerted a marked influence in this direction. High priced feed has also been a factor. We can no longer afford to waste feed on scrubs. Our aim from now on, more than ever before, should be to keep on our farms those types of animals that are capable of converting our feed into the largest number of pounds of the best quality of product.

Importance of Disease Prevention

To you men and your associates is entrusted the great responsibility of keeping as free from disease as possible, the immense aggregation of farm animals in the United States, worth at the present time approximately ten billions of dollars. Diseases to which the animal kingdom has been subject have been the cause of great economic losses. If these diseases can be materially reduced, it will be a real benefit to both producers and consumers. You are to be congratulated upon the distinct progress which has been made during recent years in combating such diseases as hog

(Continued on Page 125)

Infectious Ophthalmia (Pink Eye) of Cattle

By S. L. STEWART, D. V. M., Chicago

INFECTIOUS ophthalmia in cattle involves the conjunctiva, usually the cornea, and the deeper structures as a sequela. The disease is present continuously in the United States, appearing here and there in single herds, enzootic in character, when seemingly the ophthalmia takes on a more virulent form, the disease becomes more severe and spreads rapidly, taking on the form of an epizootic, becoming widely disseminated over the country within a few weeks' time, affecting hundreds of cattle. Even though many cattle are blinded as a result of the disease, veterinarians are rarely called to treat it among range cattle. The medicinal treatment is advantageous, as loss of flesh is rapid during, and for some time following an attack of infectious ophthalmia. Veterinarians should at least be called to treat all dairy cattle so affected, in order that the disease may be cut short in its course and lessened in severity, and last, but not least, to prevent milk from infected cows being used for human consumption, especially for infants. Even though the disease is not transmissible to the human except by direct inoculation, and then not typical of the disease, pus-producing organisms found in the muco-purulent discharge may contaminate the milk, gaining entrance to the milk pail at the time of milking, on particles of dust. The cow is also suffering from a rise of temperature, which changes the chemical composition of the milk to such an extent as to render it unfit for infants.

Recurrence

An attack of the disease does not immunize the animal for any great period of time. However, very few animals contract the disease the second time within a few weeks or months, even though they have completely recovered and other cattle within the herd are constantly developing the disease. Animals that have the disease in an acute form will contract it the next year or whenever exposed to the same variety of virus. In some cases an animal may have the disease in an acute form in one eye, but the other eye not being immune, may become infected within a short period of time from the first eye or from other cattle. Age seems to have no bearing on susceptibility to the disease, as old and young seem to be alike susceptible. Horses, mules, asses, dogs, cats, sheep and goats have a natural immunity against infectious ophthalmia of cattle.

Etiology

The specific cause of infectious ophthalmia has not been worked out sufficiently to make any positive statement as to the organisms which produce it. The theory that the causative agent is a filtrable virus is pretty well established, but as yet it has not been proved. Some claim streptococci and short bacilli which are present are causative agents, while others believe that the pus-producing organisms are only secondary invaders. It is generally believed that we will have to look farther for the cause.

Conjunctiva

Only the parts of the eyeball and its accessories that are affected in ophthalmia will be described.

The conjunctiva, the mucous membrane lining the inner surface of the lids, is reflected over the forepart of the sclera and cornea, and joins the lids to the eyeball. In each of these situations its structure presents some peculiarities worthy of mention. The palpebral portion of the conjunctiva lines the posterior surface of the lids. It is thick, opaque, highly vascular, and covered with numerous papillae, its deeper parts presenting a considerable amount of lymphoid tissue. At the margin of the lids, it becomes continuous with the lining membrane of the ducts of the tarsal glands, which number forty-five to fifty in the upper lid and thirty to thirty-five in the lower lid. The conjunctiva is also continued through the lacrimal canals, as the lining membrane of the lacrimal sac and naso-lacrimal duct. At the outer angle of the upper lid, the lacrimal ducts open on its free surface.

The bulbar portion is that part of the conjunctiva which is loosely connected

to the globe. Here it becomes thinner, loses its papillary structure, is transparent and only slightly vascular in health. Upon the cornea the conjunctiva consists only of epithelium constituting the anterior layer of the cornea. Lymphatics arise in the conjunctiva in the delicate zone around the cornea from which the vessels run to the ocular conjunctiva, supplying it with nourishment.

The fornices of the conjunctiva comprise that part or line of reflection of each fold of the conjunctiva from each lid into the globe of the eyeball.

The caruncula lacrimalis is a small dark-colored, conical-shaped body situated at the inner canthus of the conjunctival sac. It consists of an island of skin containing sebaceous and sweat glands, and is the source of the whitish secretion which constantly collects at the inner angle of the eye. Its main function is to guide the tears into the lacrimal canals.

The nerves in the conjunctiva are numerous and form rich plexus, and terminate in tactile corpuscles, which are exceedingly sensitive.

The lacrimal apparatus consists of the lacrimal gland located in the depression of the supra-orbital process. Its excretory ducts convey the tears to the surface of the eye; they are carried away by the lacrimal canals into the lacrimal sac and along the naso-lacrimal duct into the cavity of the nose.

The Eyeball

The eyeball is embedded in the fat of the orbit, but is partly surrounded by a dense membranous sac, the periorbita, which isolates it, so as to allow of free movement. Two large pads of fat are found in the orbit, one located external to the periorbita, known as the corpus adiposum extraorbitale, the orbital fat; the other is located within the periorbita and is known as the corpus adiposum intraorbitale, ocular fat, which fills in between the ocular muscles; each forms an antipercussion pad upon which the eyeball rests.

The eyeball is composed mainly of three concentric coats, which are curved in correspondence with the external form of the ball. They surround the transparent, partly fluid, partly compact, contents of the eyeball, and are known as the external fibrous tunic, the middle or vascular tunic, and the internal tunic or retina.

The fibrous tunic is by far the largest of the three coats, and decidedly the firmest. It encloses the whole eyeball like a capsule, and is divided into an anterior smaller, transparent, more curved portion, the cornea, and a larger, posterior, opaque portion, the sclera, about five-sixths of the circumference being formed by the latter and one-sixth by the former.

The sclera is a firm, thick, practically unyielding fibrous coat, continuous with the cornea at the sclero-corneal junction. In its posterior medial portion, it is very intimately connected with the dural sheath (direct extension of the cranial dura mater around the optic nerve to the sclera) of the optic nerve. Its outer surface is somewhat roughened and furnishes attachment for the ocular muscles. The inner surface is very smooth, and is connected with the middle tunic by a thin layer of loose pigmented tissue, the lamina fascia, which by its loose arrangement furnishes a passage for the lymph. These spaces are known as perichordal lymph spaces or subdural lymph spaces, which directly or indirectly communicate with the lymph spaces of the optic nerve, or directly with the posterior ciliary veins.

The cornea is the anterior part of the fibrous tunic of the eyeball, is transparent, shaped somewhat like a watch crystal and curved more than the sclera. The anterior surfaces contact the bulbar conjunctiva; the posterior surface forms the anterior wall of the anterior chamber of the eye. The cornea is completely devoid of blood-vessels. It is, however, exceedingly well supplied with lymph and nerves.

The vascular tunic is termed the choroid, and is composed mostly of blood-vessels.

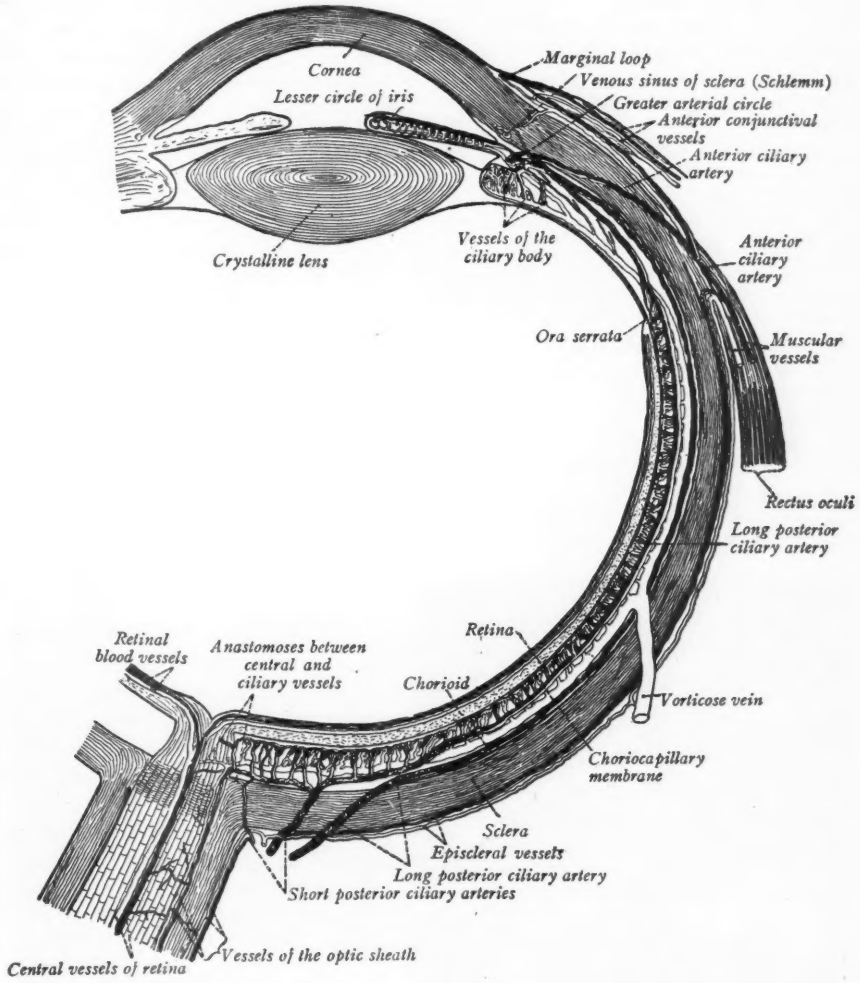
The retina is the inner tunic of the posterior part of the eyeball. A membrane of nerves formed by the central processes of the retinal ganglion cells which, after converging to the optic papilla, leave the eyeball by piercing its fibrous and vascular tunics as a cylindrical cord, the optic nerve.

The iris is a thin contractile curtain,

suspended in the aqueous humor between the cornea and the lens. It divides the aqueous chamber into two parts, the anterior and the posterior chambers. It is composed of circular and radiating muscle fibers, blood-vessels and nerves. Contraction of the circular muscle contracts the pupil. Contraction of the radiating fibers or relaxation or paralysis of the circular muscle fibers causes dilation of the pupil. Relaxation or paralysis of the circular muscle of the iris and ciliary body to which the iris is attached opens more widely the sclero-corneal canal through which the lymph of the aqueous chamber escapes.

The Lymph Passages of the Eyeball

There are two sets of lymph spaces in the eyeball, the anterior and posterior. The anterior lymph spaces consist of the



The blood-vessels of the eyeball diagrammatically represented. (After Th. Leber.)
(Reproduced from the "Atlas and Textbook of Human Anatomy," by Sabotta-McMurrick. We regret that we were unable to reproduce the fine coloring of the original, which adds greatly to the value of the diagram.)

cornea, the iris, the anterior chamber, and the posterior chamber. The lymph from the cornea enters the conjunctival lymphatics at the margin of the cornea. The lymph spaces of the iris open into the anterior chamber. The lymph from the anterior and posterior chambers is removed principally by pressure, through the spacial anguli iridis into the sclero-corneal canal, thence into the anterior ciliary veins. The posterior lymph spaces are those through which the lymph from the vitreous cavity escapes. They consist of the hyaloid canal and the subscleral lymp spaces. The hyaloid canal extends from the posterior surface of the lens to the optic disk where it communicates with the intervaginal spaces of the optic nerve, thus allowing the lymph from the hyaloid canal to mix with the cerebral fluid. The subscleral lymph spaces also communicate with the intervaginal spaces of the optic nerve and also with the large ciliary veins, allowing the lymph from these spaces to mix with the cerebral fluid, and directly with the blood stream.

Morbid Anatomy

At the onset of the disease the eyelids are partially closed; on account of the extreme photophobia, lacrimation is seen early. The conjunctiva shows increased heat, redness, later swelling and sensitiveness. During the progress of the disease there is congestion of all the vessels of the conjunctiva and later those of the entire eyeball, followed by exudation in the conjunctiva first and then in all the other parts. The extent of the swelling depends upon the amount of accumulated exudate. The papillae of the conjunctiva become thickened and swollen, giving the inside of the lids a granulated appearance. In other cases, the swelling becomes so extensive that the palpebral conjunctiva is pushed over the margin of the lids, giving them the appearance of being turned wrong side out. The bulbar conjunctiva and cornea become congested with lymph and opacity of the cornea is seen, and frequently, molecular disintegration, usually terminating in corneal ulcers. Many ducts of the tarsal glands become closed and styes (Hardeolei) are common. The caruncula lacrimalis becomes congested, and in some cases so greatly swollen that it stands out prominently. An abnormal caruncula secretion is present which assists in gumming the skin of the inner canthus. The lacrimal ducts are closed by the swelling of the palpebral conjunctiva, causing epiphora.

Typical case of infectious Ophthalmia in Cattle.—Stewart.

The discharge from the conjunctival sac is muco-purulent in character, containing pus-producing organisms, cast-off ephthelial cells, leukocytes and tears, and frequently red blood cells.

On account of the extreme inflammation most of the ocular structures become affected. Therefore, from congestion of the choroid, retina, iris and ciliary bodies, the structures become swollen soon after the first symptoms appear. If the disease is of the acute type and the virus unusually virulent, capillary hemorrhage is also common, giving the eyeball a red appearance.

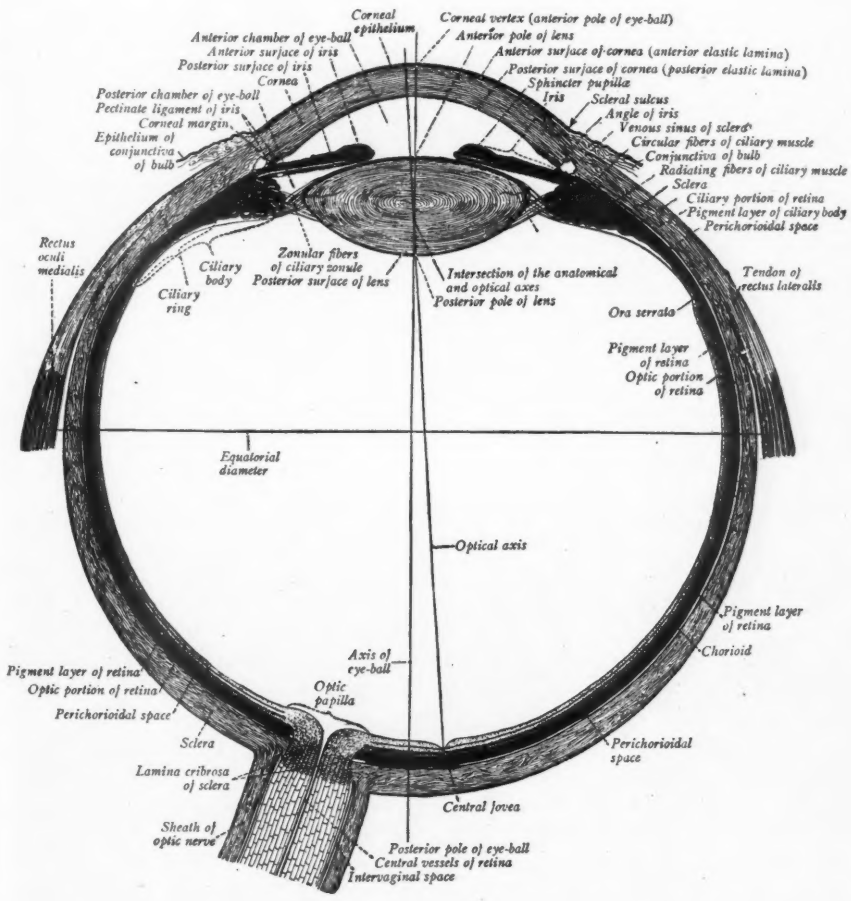
The iris contracts until the pupil is quite small. Contraction of the iris, in addition to swelling of the conjunctiva and the fibrous tunic, closes the sclero-corneal canal, preventing the outflow of lymph from the aqueous chamber. A large amount of lymph soon gains entrance to the chambers of the eye and accumulates rapidly. Therefore, intra-ocular pressure is usually great, and bulging of the cor-

nea soon is noted, adding greatly to the already intense pain; either temporary or permanent paralysis of the central processes of the retinal ganglion soon follows, resulting in temporary or permanent blindness. In many cases intra-ocular pressure becomes so excessive that the cornea ruptures and the aqueous fluid runs out. In some cases, anterior or posterior synechiae (adhesion of the iris to the cornea or crystalline lens) are seen, and in others opacity of the lens occurs.

When infiltration of the entire ocular structures (muscles, fasciae; fat) takes place the entire eyeball protrudes.

Symptoms

The symptoms are characteristic of the disease and a diagnosis is usually easy. One of the first symptoms is photophobia; the eyelids are partly closed and lacrimation is excessive, the tears running from the inner canthus of the eye over the cheek and soiling the hair. Later the tears are mixed with a muco-purulent dis-



Meridional section of the human eyeball (diagrammatical).

(Reproduced from the "Atlas and Textbook of Human Anatomy," by Sabotta-McMurrich, in which the natural colors are faithfully reproduced.)

charge, adhering to the hair on the face. The animal eats little and shows evidence of great pain and frequently symptoms of endo-toxemia. The hair over the body becomes somewhat rough. The animal drinks frequently if the water is of mild temperature and easy of access. It gaunts and loses flesh rapidly, moves around very little, and is frequently found trailing the herd or standing humped up in the corner of the barn when it should be eating. The temperature rises to 102° or 104° F. early in the course of the disease, but falls to normal or sub-normal after paralysis of the sensory nerves of the eyeball is complete. In mild cases, the rise of temperature is not noticeable, and the structures within the eyeball do not become severely affected, and recovery is rapid. When hemorrhage into the aqueous chamber occurs, the eyeball has a reddish cast. The animal shows symptoms of much suffering, fatigue and weakness.

Duration

The duration depends upon the severity of the attack, whether one eye became infected and later the other, whether the animal received medicinal treatment from the onset or if it was properly housed and cared for in sanitary surroundings. In mild attacks, the disease may last ten to fifteen days; in severe cases it may be one to three months before entire recovery takes place.

Termination

Resolution, opacity of the cornea, opacity of the crystalline lens, anterior or posterior synechiae, coagulation of lymph in the aqueous chamber causing opacity, rupture of the cornea and loss of the aqueous fluid, partial or complete blindness.

Prognosis

Loss of life is somewhat uncommon, unless the animal is old and thin in flesh, and even then death usually results from debility and not directly from the effects of infectious opthalmia. If the attack is mild the prognosis is favorable, especially if the animal has proper medicinal treatment. In acute cases, and the infection virulent, prognosis is guarded to unfavorable, and loss of sight and even loss of the eyeball is common.

Sanitation and Isolation Important

In all outbreaks of infectious ophthalmia, sanitation and isolation are of prime importance. The sick animals should either be retained where the disease developed or removed to some quarters where proper treatment and care can be administered. The healthy animals should all be removed to uninfected quarters if possible, otherwise new cases should be removed from the herd as fast as they appear. Clean and disinfect the barn, sheds, watering and feeding troughs; place the affected animals in a clean dark stall or use blinds to shut out the light. Treatment should consist of local applications to the eye of agents which will destroy the infection, lessen the inflammation, and the use of mydriatics to open the channels of elimination (lymph spaces). The following prescriptions are highly recommended by many:

Rx. Atropin Sulphas .....gr. I
Zinci chloridi .....gr. I
Phenol .....m X
Aqua dest q. s. .....℥ I

M. Sig. With eye-dropper place a few drops in the conjunctival sac three times daily.

Rx. Fluid Ext. Hydrastis.....ʒ IV
Zinci Sulphatis .....gr. I
Atropin Sulphatis .....gr. I
Aqua dest q. s. .....℥ I

M. Sig. Instill a few drops into the conjunctival sac three times daily.

Rx. Ac. Borici .....gr. X
Fluid Ext. Hydrastis .....ʒ II
Aqua dest q. s. .....℥ I

M. Sig. Instill a few drops in the eye three or four times daily (Quitman).

Protoiodid of mercury is recommended, especially in cases of several days' standing, where opacity is persistent. Some drug houses prepare what is called ointment conjunctivitis, which gives fair results, but this is recommended only in cases of several days' standing where opacity exists. Cold packs over the eyes

and changed often where swelling is severe, are highly recommended. They aid greatly in reducing the inflammation.

Bacterins have been used in the treatment of infectious ophthalmia, also for immunization, and are recommended by a few biological laboratories, but as yet such treatment is only in the experimental stage, and cannot be recommended until further research work has been done or the true etiological factor has been discovered and bacterins are produced from the organism known to cause the disease.

Twenty-third Annual Meeting of the U. S. Live Stock Sanitary Association

THE Twenty-third Annual meeting of the United States Live Stock Sanitary Association was held in Chicago, December 1, 2 and 3. The attendance at this meeting far exceeded that of any previous meeting, reaching a total of more than five hundred.

The address of welcome was delivered by Gov. Frank O. Lowden, much to the gratification of those attending. Gov. Lowden, is reported to have more than two hundred requests for addresses per week, the majority of which he must decline.

In introducing Gov. Lowden, President Geo. W. Dunphy of Michigan said in part: "This state (Illinois) has given us two great presidents of the United States. We understand that it is ready to offer us a third, and after you listen to the genial welcome of Gov. Lowden, I feel sure that you will make up your minds to accept Illinois' third offering."

Governor Lowden a Live Stock Enthusiast

In the course of his address, which dealt almost exclusively with live stock problems, the Governor mentioned that he was a charter member of the International Live Stock Exposition and that he had been an exhibitor there for many years. He paid high tribute to the services that live stock sanitarians rendered the live stock industry and therefore the country as a whole, stating that the value of such service was inestimable. He praised the work that veterinarians had done in the past few years in combating tuberculosis, accomplishing the almost impossible, and that in the light of this experience, we can look forward to the day when this animal plague will be eradicated from the country.

He urged that veterinarians present lose no opportunity to impress upon the live stock raisers in their several localities the value of pure-bred sires, stating that if there is one thing that can be made clearer than anything else, to the ordinary mind, it is that a pure-bred sire will pay for itself in a shorter time and realize larger dividends for its owner than any like investment the farmer can make.

He stated that the great war now come to a close had demonstrated beyond possibility of denial that no nation is secure that does not have the means within its own borders to feed itself. Danger and fear stalk the land that is not so favorably situated. That our own strength consists largely in the fact that we are able to feed ourselves, but that in normal times the exports of farm products have been decreasing, and that it is only a question of time when America will have no surplus beyond her needs; that the obvious reason is that without better methods of agriculture and especially without better methods in the live stock industry, America will soon reach the point where she is not able to feed herself, so that at the present time, our best hope for the future, not only of our own great industry, but that of the country, is improved agriculture and that no agriculture is successful which is not so conducted as to maintain permanently the fertility of the soil and that this cannot be done practically unless the tilling of the soil and the raising of live stock go hand in hand.

Greater Recognition for Agriculture Asked

Mr. D. A. Wallace, editor of *The Farmer*, St. Paul, made the response to the address of welcome. His address was along much the same line as that of Gov. Lowden, a plea for better agriculture and better animal industry. He was applauded when he said: "The time is near at hand when the agricultural voice of the West must have an expression in the Presidential

chair." He spoke of attending a recent national conference of Farm Bureau Organizations held in this state. He spoke of the farmers being the only unorganized class in the United States, being both capitalists and laboring men, and as constituting the balance of power and the balance wheel of the country. He stated that farm people are awakening to the necessity of forming a national program that will place agriculture in its right relation to other industries, that the farm people are coming to realize that they must join the ranks of the organized classes in this country to secure for themselves the rights in the industry to which their place entitles them. In closing, Mr. Wallace paid a high tribute to his close personal friend, the late Dr. S. H. Ward, former secretary of the association, and stated that it was due to the efforts and the ability and untiring industry of Dr. Ward that Minnesota had been placed in the front ranks so far as live stock sanitary matters were concerned.

$400,000 Increase for B. A. I. Employes

The Hon. Mat. S. Cohen, Commissioner of Agriculture of Kentucky, chairman of the Legislative Committee of the association, reported the efforts that the committee had made in Washington to secure an appropriation for additional pay for veterinary inspectors, stating that their efforts had been only partially successful, but that they had secured an emergency appropriation of something more than $400,000 to be distributed among veterinary inspectors as a war bonus.

60-Day Tuberculin Test Opposed

Following Prof. Smith's paper (which is published in this issue) was an address by Mr. Frank W. Harding, secretary of the American Short Horn Breeders' Association, devoted chiefly to discussion of the tuberculosis problem. He believes that the beef cattle breeders strongly favor nationalization of the subject and the adoption of the most uniform regulations and methods of dealing with tuberculosis that can possibly be agreed upon between the states and the national government. He pointed out many of the marked differences and glaring inconsistencies in the present varying regulations by different states. He particularly criticises the recommendation that animals be tested within thirty days of the time they are shipped into certain states, stating that it did not give the breeder of pure-bred cattle time to get out his catalogue, hold a sale and dispose of his cattle after a test was made. He also opposed the sixty-day retest, stating that this should be left to the honesty and integrity of the breeders. He strongly urged that show cattle being taken from one state fair to another be not required to comply with the regulations for the shipment of cattle in to those states. He dwelt at some length upon the value of the tuberculin test in certain cases, and quoted Dr. Alexander of the University of Wisconsin as having said he did not believe that valuable breeding animals should be condemned for tuberculosis on the result of one test.

Cost of Tuberculin Tests Too High

Mr. Harding also deplored the cost of the tuberculin test as being a hindrance to the trade in pure-bred live stock, stating that many young bulls were sold for improving the quality of beef cattle at a price around $200 and that at the present it cost about $20 to test such a bull before shipping and an additional $20 for the 60-day retest, and he contended that $40 for the testing and only $200 for breeding, rearing, feeding and selling the bull was not fair.

Accredited Herd Plan Impractical

He strongly favored the segregation of reacting animals and the retention of those that were good breeders. He spoke favorably of the accredited herd plan, but stated that only a beginning had been made and he did not see how it would be possible to apply it to all the herds in the country, stating that there are 35,000 herds of registered short horn cattle alone, and that it would appear it would take a great many years to get this number of herds on the accredited list. He stated that he personally would rather buy cattle from a herd that had passed a successful test within thirty days than to get them from an accredited herd that had not been tested for approximately a year.

Large Doses of Tuberculin Wrong

He believed that harm was being done by giving some animals enormous doses of tuberculin and that such doses are unnecessary. He assured the live stock sanitarians and practicing veterinarians present of the fullest co-operation of the beef cattle breeders in the continuance of any reasonable measures for the control of tuberculosis.

Senator J. M. Hackney of Minnesota,

Secretary of the American Holstein-Friesian Association, made one of the most excellent addresses of the whole meeting. Like Secretary Harding, this discussion was devoted almost exclusively to the tuberculosis problem. He stated that in his locality there were plenty of veterinarians who were well advanced in horse diseases, but that they found it difficult to procure men who had the necessary experience and ability in handling the diseases of cattle, especially the diseases of dairy cattle. He was loudly applauded when he said: "Any man who puts up an animal for sale either at a private sale or at an auction, who knows that that animal is tubercular should be indicted and convicted as surely and as quickly as though he had committed murder."

Convincing "Show Me" Legislators

Senator Hackney told of an interesting experience that he had while a member of the Minnesota Senate. A bill had been introduced in the state legislature to prohibit the tuberculin test. A majority of the members of the legislature seemed to favor it. Senator Hackney obtained permission to test a herd and found 19 reacting animals. These were sent to the St. Paul yards and slaughtered and members of the legislature invited to witness the autopsies. Not all of them attended. Senator Hackney obtained diseased organs of the animals and took them to the State House, put them on display in the corridors where the members could not help but see them. Instead of prohibiting the tuberculin test in Minnesota, the legislature enacted laws strengthening its application.

Senator Hackney's experience with the Bang method or the segregation of affected animals was unsatisfactory. He favored, however, permitting herds on the accredited list to use a reacting sire and thought that the tuberculosis free accredited plan should be changed to permit this. He made a strong plea for the recognition and use of certified milk and deplored the fact that many practitioners of human medicine did not seem to realize its superiority over a pasteurized product.

The meeting was briefly addressed by Representative Haugen of Iowa, Chairman of the Agricultural Committee of the House of Representatives. Rep. Haugen assured the members that they could be of great assistance to the Agricultural Committee and that any suggestions they had to make would be heartily received and given the most careful and conscientious consideration.

Feeder Hog Problems

Following Rep. Haugen, the association was addressed by Mr. W. W. Wright, Superintendent of the Division of Animal Industry, Illinois Department of Agriculture, on "The Safe and Practical Regulations for Handling Feeder Hogs." Mr. Wright gave statistics showing the number of hogs shipped into Illinois for feeder purposes for the past two years from the various live stock markets and the loss from cholera and from all other diseases during that time. The largest number of hogs was received from the National Stock Yards at E. St. Louis. The largest loss was in hogs from St. Joseph, Mo., 13.5 per cent. The smallest loss was from the Chicago Stock Yards, 2.1 per cent. He believed that feeders could stand a loss up to 3 per cent in hogs shipped out of the yards for feeder purposes and that such loss is reasonable. He believed that with the present method of handling these hogs, spraying, immunizing and shipping out of the yards promptly, that the loss could be kept down to 3 per cent or less.

Mr. Wright's paper was discussed at some length by Drs. Luckey, McDonald, Birch and others. Dr. Luckey expressed his opinion that the present federal regulations for the manufacture of anti-hog cholera serum and for hog cholera virus are not sufficiently strong to insure a good product. He does not believe that it is necessary to have a loss anything like as high as at present occurs in the shipment of feeder hogs. He believes that where good serum and virus is used and the vaccination properly done that the loss will be very materially less than 1 per cent.

Mr. Mercer, Live Stock Commissioner of Kansas, defended the present regulations for the manufacture of anti-hog cholera serum and virus and its use in the yards and stated that the federal government control of this matter had been most helpful in Kansas.

A number of speakers emphasized the point that feeder hogs should not be allowed to remain in the yards more than three days and that it is in the shipments that have been in the yards from three days up until a week or ten days that the greatest losses from hog cholera occur and that through them hog cholera is carried to the

farms, and spread and thus great loss is sustained.

Regulations for Swine Shipments Chaotic

Following the discussion by Mr. Wright, the association was addressed by Mr. W. J. Carmichael of Illinois, Secretary of the American Swine Breeders' Association, on "Regulations for the Interstate Shipment of Swine in Crates." Mr. Carmichael pointed out the widely differing and frequently changing regulations that many states have for the shipment of swine in crates. He plead for more uniform regulations in this particular, and a committee was appointed by the Association to look into the matter and refer such a plan to the Bureau of Animal Industry and to various live stock authorities of the United States.

Following Mr. Carmichael's address, the committee on hog cholera control presented its report. The report was published in the Department of Swine Practice in the February issue.

Following this a report of the committee on the differential diagnosis of swine diseases was presented. This report was published in the Department of Swine Practice in the January issue.

The papers were presented by Dr. W. E. King of St. Paul, Minn., on "Symptoms, Lesions and Diagnosis of Conditions Produced by the B. Paratyphosus and Enteritidis," and Dr. W. W. Dimock, of Lexington, Ky., on "Symptoms, Lesions and Diagnosis of Conditions Produced by the B. Suipestifer and B. Coli Communis."

Following this, a paper was presented by Dr. Robt. Jay of Nashville, Tenn., on "Comparative Symptoms and Lesions of Hemorrhagic Septicemia and Hog Cholera." This paper was published in the February issue.

State Regulations Should Be Supplanted By Federal Rules

Mr. Edwin Boddington, counsel for the serum producers association, presented a paper on "State Laws Affecting the Serum Industry." Mr. Boddington believes that state regulations for the manufacture, sale and use of serum are unnecessary and that they work out harmfully. He believes that all serum should be made under the regulations of the United States Department of Agriculture and that the states by setting up different standards and imposing different restrictions on the manufacture, sale and use of serum not only fail to improve the quality of the serum used within the state, but they hinder the widest use of serum and in the case of a wide spread outbreak of hog cholera, their regulations might interfere with their obtaining an adequate supply of serum and thus enormous losses to the swine industry of the state would result.

Dr. E. A. Cahill of Indiana, took issue with Mr. Boddington, particularly in the defense of the Massachusetts regulations which Mr. Boddington criticised severely. Dr. Cahill believes that state legislatures are acting within their own province in making any regulation on the recommendation of their technical adviser for the protection of the swine industry of those states. He stated that the present federal regulations for the manufacture of anti-hog cholera serum and virus were not sufficient to insure a good product for the reason that since their tests were chiefly tests for potency and it was possible, and in fact cases had worked out, where serum containing hundreds of thousands of disease-producing bacteria per cc. had passed the prescribed tests and that the use of such serum was unthinkable.

Hog Cholera Control a Problem of Diagnosis

He stated that the control of hog cholera was not as simple as it appeared to be a few years ago and "that the pendulum has swung too far one way." There are cases which are being called hemorrhagic septicemia or necrotic enteritis which are hog cholera. Other cases are called hog cholera where animals show symptoms and lesions somewhat different from those which we are accustomed to find in hog cholera. Such animals on test sometimes prove immune to hog cholera virus. He said:

"I believe we owe a debt of gratitude to the gentlemen who have been working on this program continuously for years and who have presented papers at this meeting. I believe they should continue their work in the hope that next year they may be able to give us more detailed information, and in the meantime I urge that the danger of hog cholera be never forgotten and that we be not too hasty in our conclusions one way or the other and not too quick to condemn a practicing veterinarian who is unable to make a positive diagnosis."

In the general discussion that followed, Dr. Bahnsen strongly urged that the B. A.

I. call a hog cholera control conference, to meet for several days and in which all other subjects would be excluded from the discussion.

The Practitioner's Dilemma

Dr. A. B. Niven, a practitioner at Crawfordsville, Ind., spoke of some of the difficulties with which a practicing veterinarian has to contend in swine practice. He said in part: "I always give plenty of serum and virus, because the other fellow pays for it anyhow, and for three years in the hog territory, it has been my experience, that they do not object. Three years ago we had considerable trouble from mixed infection. It infected every kind of shoat, good, bad and indifferent, under all kinds of sanitary conditions, good, bad and ideal. Later in the year it commenced infecting the larger hogs and today we have it affecting everything. It will attack a herd of hogs under various pathological conditions and the old sows will die without any warning. They will be found dead in the morning, sows that have been all through cholera, showing all kinds of lesions, and one hog will show one lesion and another hog another. I have tried all kinds of treatment that were ever thought of or suggested, vaccines, internal and external antiseptics, and all kinds of worm medicine and all kinds of dieting. On the whole we have had fairly good success, but it is an awful job, and in some cases we find herds where they practically all die. Nothing will check it. In another herd of hogs, probably an application of two or three vaccines will work, and will check the disease immediately.

"Then after six or eight weeks, they all break out again with another infection, showing another lesion, and you have the same trouble over again.

"I have been told by some who have been experimenting that it is a virus that is back of all this trouble. I think probably it is, but still we could take these same hogs that we have immunized, the same sores and the same viruses, and they stand up under that, and it does not look feasible, so we have a condition here that we must work out, and we are not making very rapid progress, and it seems to me that hogs are dying faster than they were. More hogs are dying this year than ever before. Whole herds in some places are cleaned out, and again in other places it is checked readily. Once in a while it checks itself."

In discussing the general problem of hog cholera, Dr. M. Dorset, Chief Biological Division, Bureau of Animal Industry, said:

Dorset Puzzled By Multiplicity of Names

"I have listened with a great deal of interest to the papers this afternoon. I think we are very much indebted to the two committees which have gone so carefully over this subject, and attempted to bring some order out of the chaos that exists with respect to swine diseases at the present time.

"I confess that for the last year or so, I have felt very much puzzled with respect to hog diseases in the United States. Prior to that I thought I had a pretty fair grasp of the diseases that existed, and were of importance.

"Now, in the last year or so we hear of almost a multitude of new diseases, that is, new names. We hear that hogs have the 'flu.' We hear of mixed infection in swine. We hear of shipping fever and hemorrhagic septicemia, and numbers of other diseases. Coincidently with the springing up of these new diseases a large number of bacterins and vaccines have been put upon the market, intended to combat these conditions. We have had hemorrhagic septicemia bacterin, the mixed infection bacterin, the suipestifer bacterin.

"I wonder whether we have in the United States a number of new diseases of hogs, or whether these new diseases are really old enemies under new names. If we judge by the bacterins I would be inclined to think they are our old and long recognized enemies, because the bacterins are prepared, as you know, from the Bacillus suisepticus, generally regarded as the cause of swine plague or pneumonia in pigs and the suipestifer which we know, is the old hog cholera bacillus. We know these infections are found frequently in pigs, and we know that hog cholera itself is a mixed infection; that hog cholera itself is never a pure infection with the filtrable virus, so I say I have been puzzled indeed, and I really feel that I do not know enough at the present time to express myself positively with respect to these conditions.

"It seems to me, as has already been pointed out, that what we need is very careful research work, to segregate and define these different diseases. There is no doubt in my mind now, and in fact

there never has been any doubt in my mind, but that there are other infectious diseases of hogs in the United States than hog cholera. There are infections, undoubtedly, independent of the filtrable virus. At the same time I am quite sure, as other speakers have stated, that the pendulum has swung too far away from hog cholera in many cases.

Bacterins Should Not Supplant Serums

"Certainly in many cases during the past year, large numbers of hogs have been lost from hog cholera through failure to use serum in time. The diagnosis of hemorrhagic septicemia or mixed infection, or some other disease has been made, and a bacterin of some sort administered, and the veterinarian has not realized that it was hog cholera until the herd was too far gone to be benefited by the serum treatment.

"Really, at the present time, it requires, on the part of the veterinarian, splendid judgment, almost omniscience, I should say, to make his diagnosis correctly. I am sure that the practitioners here are very much worried, troubled and uncertain with respect to their diagnoses, and I must say that I do not believe we know enough at the present time to help them very materially.

"It seems to me, with respect to the use of bacterins, which have been so widely used, that they are used at very considerable expense to the farmer. They sell, I believe at from 10 to 25 cents per dose, not including the cost of administration, and a man with a big herd of hogs may pay several hundred dollars to have these vaccines injected into his hogs, and I really feel that with respect to the bacterins, we have got the cart before the horse; that we are endeavoring in many cases to treat diseases with certain micro-organisms, when we don't know yet what the causes of those diseases are, and that is certainly, to say the least, unfair.

"I believe, as I said before, that we need more research. The Bureau of Animal Industry, with the rather limited appropriations available to it, at the present time, has undertaken a study of this subject, but it is not a question that can be decided promptly over night or in six months, nor perhaps even in a year. I hope that all states that have funds for research work on hog cholera will themselves engage in researches so that we may get a foundation which will enable the veterinarian to diagnose these diseases in the field.

Have a Care for the Filtrable Virus

"I really believe that it is almost impossible for the practicing veterinarian in the case of sick hogs in the field to exclude hog cholera, even though, in many cases, they have what they call the 'flu,' or hemorrhagic septicemia, or 'mixed infection.' It is undoubtedly true that the hog cholera virus is very mild in virulence at times; that it does not always produce great losses in hogs.

"I had the opportunity to observe a case of that kind in a herd of some 50 or 60 pigs in Iowa which Koen had in charge. These pigs were divided into a number of different lots. One lot was given the simultaneous inoculation; one lot was given serum alone; one lot I believe was given a mixed infection bacterin, and still another lot was fed or given a certain amount of copper sulphate. If I remember rightly that is the way they were divided, and these pigs had shown some symptoms, though not very characteristic, of hog cholera. They didn't feel quite sure about it, and the result was that practically all of the pigs in that bunch did well. There were no deaths, or practically no deaths after treatment, in any of these hogs, and yet blood was taken from that herd and examined carefully and passed through several pigs, and finally brought to a high virulence, undoubtedly hog cholera, and we all thoroughly believed that in that herd there was a filtrable virus of low virulence, which was probably the inciting cause in that particular outbreak. That is only one case, but it shows the situation that prevails.

"In conclusion I will merely say that in my opinion very great care ought to be used by the veterinarian when he declares that hog cholera is not present in a herd. He knows that the serum will protect the hogs against cholera. If he discards that serum and gives bacterins on the supposition the trouble is something other than hog cholera, he has not the assurance that the bacterins will protect the hogs from the other diseases or the thing or things that he is trying to treat, and therefore a great deal of care should be used. I believe the hogs ought to be given the benefit of the doubt, unless the veterinarian is quite sure that they have not hog cholera, the hog

ought to be given the serum early in the disease."

Contagious Abortion Defined

The report of the Committee on Infectious Abortion was presented by the chairman, Dr. Ward Giltner, of the Department of Bacteriology and Hygiene of the Michigan Agricultural College, East Lansing, Mich. In a preliminary statement, Dr. Giltner defined what the committee meant by abortion disease, as "A condition under which there is a failure of the fetus to properly develop; death, expulsion, retention of the fetus or afterbirth, and secondary complications of whatever nature. Probably most cases of sterility are due to failure of development in the very earliest stages of the life process; in carrying the fetus to full term there may be, and is a failure of perfect development in the disease under discussion. The meaning of the word abortion does not signify that the fetus must be dead or that it be expelled from the uterus, but only that it fail to develop properly. If it fails to develop immediately after the ovum and spermatozoon unite; if it dies in the uterus and is not expelled for a prolonged period; if it is expelled at any time during the normal period of gestation without having properly developed, then in each case we are dealing with abortion.

The report of the committee on contagious abortion summarized what is known on this subject at the present time. This report will be published in the Journal next month.

Following the report of the committee, a paper on "The Etiology of So-Called Infectious Abortion Diseases of Cattle" was presented by Dr. E. C. Schroeder, of the Bureau of Animal Industry Experiment Station at Bethesda, Md.; a paper on "The Nature of Abortion" by Prof. W. L. Williams, New York State College, Ithaca, N. Y.; a paper on the "Sequelae of Abortion Bacilli Infection of the Bovine Uterus" by Prof. E. T. Hallman, of the Department of Pathology of the Michigan Agriculture College, East Lansing, Mich., and a paper on "Abortion Disease and Its Control" by Dr. J. F. DeVine of Goshen, N. Y. The latter paper was published in the January issue of the Journal.

The subject was discussed by Dr. G. F. Jungerman of Hiawatha, Kansas. Dr. Jungerman discussed the subject from the viewpoint of a practitioner and expressed it as his opinion that on the whole, the papers that had been presented emphasized too much the difficulties of handling this disease and failed to give enough attention to various measures that experience has shown to be of value in the prevention, control and cure of infectious abortion. The subject was further discussed by Dr. F. B. Hadley, of Madison, Wis., Dr. T. P. Haslam of Sioux City, Iowa, Dr. O. E. Dyson, of Chicago, Dr. W. W. Dimock of Lexington, Ky., Dr. W. L. Boyd of St. Paul, Minn., Mr. A. D. Glover, editor of *Hoards Dairyman*, Ft. Atkinson, Wis., and Dr. T. H. Ferguson of Geneva, Wis. Dr. Ferguson said, in part:

Recurrent Outbreaks the Practitioner's Hard Problem

One of the problems in handling abortion disease is that after a practitioner gets a herd cleaned up in pretty fair shape so that there are not very many actual abortions, and is having good results in the way of retained placenta, that is they come away of themselves, or are easily removed, in fact the herd is in satisfactory shape to the owner and to yourself, and everything goes along smoothly for a year or so, and then something happens, and one begins to endeavor to locate the cause.

I have had herds where I thought we had an ironclad cinch on controlling abortion disease and always on close inspection as to the causes of trouble, I find it follows the introduction of new animals into the herd.

One herd in particular I thought I had cleaned up so far as abortion, calf disease, etc., was concerned, almost 100 per cent. The herd was making some remarkable records, and everything went on smoothly as long as we were selling out of the herd. A dozen heifers were brought, pregnant heifers, or supposed to be pregnant, from a farm that had had some trouble. These heifers were kept separate from the original herd for a while, and then were brought down to farm number one and turned in with the herd and one of the heifers out of the herd had abortion disease. Half of the heifers that were supposed to be pregnant proved to be open, and they were afterward bred to the herd bull and became pregnant. They carried through in very good shape, but trouble began in the main herd, the herd that we thought were clean, and we had almost fifty per cent of abortion and retained placenta in the herd.

Danger to Herd in Additions to It

In my opinion the non-introduction of animals into a herd until they have safely gone through pregnancy would be the only way to prevent such disastrous outbreaks. The introduction of new animals into a herd that has been cleaned up is a bad practice.

I have been practicing the same method as Dr. Williams, and Hallman and others, with very good success.

By this method we are enabled to select cows that have no place in the herd, and send them to the block at once.

The majority of owners want something that can be inserted into a cow that will cure the disease right away. They don't want to bother, but broad-minded men see the necessity of attacking the situation, and are getting good results by employing these methods.

The practiotioner has little knowledge as to the cause of abortion disease, except what he acquires from the bacteriologist and laboratory and research workers. After reading the reports of Drs. Giltner, Schroeder Hallman and others, I am of the opinion that the Bacillus abortus undoubtedly is the primary causal factor and from practical experience I believe if you get a herd clean, and keep fresh animals from the herd until they have proved themselves able to carry their calves, that you can keep them clean. If fresh animals are introduced in the herds, you will have the same work to do over again.

Clearing House Needed For Information on Disease Prevalence

The report of the Committee on Diseases, of which Dr. L. Van Es of Lincoln, Neb., was chairman, was read by the secretary. The report recommended the establishment of a bureau for the collection and publication of reliable, recent statistics on the prevalence of disease throughout the country, stating that such information was in reality one of the most necessary factors in making disease control successful. The committee believes that such work is eminently within the scope and function of the United States Live Stock Sanitary Association. They recommend that the inauguration of such a movement receive serious study.

The report then briefly reported what had been accomplished in tick and tuberculosis eradication and in hog cholera control. In support of the recommendation of the committee that a central agency be established to collect and report statistical information regarding the prevalence of disease throughout the country, the secretary read the following statement from the opening article in the current issue of *Public Health Reports*, issued by the United States Public Health Service:

No factory management, employes' organizations, or public health agency, can control or prevent sickness without knowing when, where and under what conditions sickness actually occurs.

This knowledge is essential, and not simply for a single day or month or year, but continuously. Eternal vigilance is never more necessary than in the control and prevention of disease, and this ofttimes can be maintained only by the systematic report of sickness. The sole influence of many conditions, harmful or helpful, cannot be recognized and evaluated unless records of ill-health are currently available for observation and study in connection with a knowedge of the conditions under which people work and live. So well recognized is this fundamental principle, that the effectiveness of a city health department is judged in large measure by the accuracy and completeness of its morbidity reports. For without dependable and prompt records of what sickness actually occurs, a public health agency is blind.

Following the discussion of the report of the Committee on Diseases, Dr. B. H. Ransom, Washington, D. C., Chief of the Zoological Division of the Bureau of Animal Industry, presented a report of the Committee on Special Skin Diseases. The report dealt at length with cattle scabies and gave statistical information regarding sheep scabies.

In discussing the report of the committee on special skin diseases, Dr. F. Torrance, Veterinary Director General of Canada, said in part:

Difficulties of Controlling Disease In a Range Country

I am glad to say that we have no sheep scab in Canada, and have not had for some years. So far as cattle mange is concerned, we have portions of the northwestern territory in Canada which have been infected with cattle mange for some years, and we have this area under restriction. It is known as the mange area, and we have been making persistent efforts to clean it up. We hope that our efforts this year will be crowned with success.

One of the great difficulties in cleaning up a range country from mange is the difficulty of getting an absolutly clean gather of the cattle for dipping purposes. In a broken country, covering many square miles of ravines, gullies and patches of scrub, it quite often happens that a cow, a calf or perhaps a few cattle, will be left concealed in some depression of the ground, and when the main body of the herd is being successfully dipped, these animals are not, and then they mingle with the herd, and gradually reinfect it.

This difficulty is one inherent to the range country. It is not a difficulty which is found in a country that is under fence. In a fenced country every animal can be dipped with absolute certainty, and the difficulty of eradicating mange is not great.

One essential, however, is to see that the strength of the dip be kept up, and fully maintained, until every animal is dipped.

We find it also highly important that the temperature of the vat shall be maintained. Dr. Ransom mentions a temperature of 105° F. We have found in the Northwest that a higher temperature within reason gives a better effect. Our lime sulphur dip is the one that is used always, and we try to get the temperatures up as high as 115° F. Sometimes we get it as high as 120°, without bad effects. One might imagine that such a high temperature would scald the animals, but it does not, and we find that the higher the temperature within reasonable bounds, the better the effect.

"Changes in the Live Stock Industry" was the subject of a paper by Mr. F. R. Marshall, Washington, D. C., Senior Animal Husbandryman of the Bureau of Animal Industry. The paper cited the changes that have occurred in the live stock industry since 1890 in the western and southwestern states, and the growing need of animal health control in these sections and the organization of the bureau to aid in this work.

Dr. I. E. Newsom of the Colorado Experiment Station, Ft. Collins, Colo., presented a paper on "Hemorrhagic Septicemia in Sheep." This paper was published in the February issue of the Journal.

This paper was discussed at length by Dr. A. T. Kinsley of Kansas City, and also by Dr. B. H. Ransom of Washington, D. C., Dr. L. A. Wright of Wisconsin, Dr. L. E. Day of Chicago, Dr. W. J. Butler, of Montana, Dr. T. P. Haslam of Iowa, Dr. Stephen Lockett of Nevada and Dr. A. Eichhorn of New York.

Commission Men Favor Sane Measures for Disease Control

"Sanitation and Live Stock Transportation" was the subject of an unusually interesting paper by Mr. A. F. Stryker, Secretary and Traffic Manager of the Omaha Live Stock Exchange. Mr. Stryker frankly stated in the beginning that there were regulations promulgated by the live stock sanitary authorities of various states and by the Bureau of Animal Industry that the live stock commission men did not believe were reasonable or necessary, but that the commission men had much to gain from the eradication of disease in animals and were sincerely in favor of, and could be absolutely depended upon to assist in reasonable regulations governing the transportation of live stock.

He also stated that there appeared to have been a failure to differentiate between the responsible and respectable live stock commission merchant and the irresponsible and often unreliable, and unscrupulous live stock peddler, stating that while the former could be depended upon to live up to regulations and not to take advantage of loop holes in regulations, the latter were prone to take every advantage offered by liberality or lax regulations, and he urged that the difference in the classes of men dealing in live stock be recognized.

The paper was discussed by Drs. D. F. Luckey of Missouri, T. H. Burnett of Ohio, C. E. Cotton of Minnesota, B. F. Davis of Wyoming, C. H. Stange of Iowa, R. D. Wall of Iowa, J. I. Gibson of Illinois, P. Malcolm, of Iowa and others.

The last number on the program was the report of the Committee on Tuberculosis Accredited Herds, by J. A. Kiernan, Washington, D. C., Chief of the Tuberculosis Eradication Division of the Bureau of Animal Industry. The report had chiefly to do with the regulations under which tuberculosis-free accredited herd testing could be done by private veterinary practitioners. Dr. Kiernan's paper and the recommendation which were presented and which were unanimously adopted by a joint committee representing the cattle breeders association and the U. S. Live Stock San. Assn. were published in the January issue.

Election of officers for the ensuing year resulted in the election of: Dr. S. F. Musselman, State Veterinarian of Kentucky, for President; Dr. E. M. Ranck, State Veterinarian of Mississippi, first vice-president; Dr. F. A. Bolser, Indiana, second vice-president; Dr. W. F. Crewe, State Veterinarian of North Dakota, third vice-president; Dr. Robt. Rives, East St. Louis, Ill., fourth vice-president; Mr. J. H. Mercer, Live Stock Commissioner of Kansas, fifth vice-president; Dr. D. M. Campbell, Chicago, secretary-treasurer.

The report of the association, containing all the papers and all discussion has been published. It constitutes a handsome cloth-bound volume of nearly three hundred pages, containing material invaluable to those interested in live stock sanitation and, of course, this includes every veterinarian. The report is supplied free to all members of the association. A small additional number has been published, which may be obtained while they last from the secretary, at $2.00 per copy.

D. M. CAMPBELL, Secretary.

The Price Placed Upon Mystery

THE following was received from a veterinarian in Ogallala, Nebraska, who assures us that it meets with some sale among live stock owners at $5 each, and that the author, Col. Wheeler, is willing to supply it to veterinarians at $1 per copy.

When one takes into account that the case of "The Sorrel Mare" is printed on a single sheet of paper and could be produced, even in modest quantity at a cost of less than one-half cent per copy, one is reminded of the price that may be commanded in some communities for anything that has an air of mystery about it.

THE SO-CALLED STALK DISEASE

The Sorrel Mare

I turned nine horses out to graze one morning in June, and went to see them eat grass. The sorrel mare was eating slough-grass which had white cristles on the tops. I drove her on, but she came back. She seemed to like the alkali. After breakfast I put all the horses in the stable, except two, which I drove to town. I came back and found the sorrel very sick. I was sure it was the alkali that made her sick. She was dead next morning. I skinned her, looked at her stomach. Half the white coating was cut off the green mass of grass, glistened with the white alkali.

A neighbor was feeding hay that grew on the lake bed, to his sheep. It killed 250 of them, and he said the alkali hay killed the sheep.

I had a saddle horse named Dexter. A neighbor by the name of Butterfield borrowed him to ride to the river; the horse was sick when he came back. Butterfield said the horse drank alkali water. That summer all the hairs of the horse's tail came out, and his mane came out, and his hoofs came off.

One winter I pastured 40 head of horses on the Abraham place. They had stalk fields to run on, and one died. On examination of her showed that the alkali had gone through her. There came a thaw that winter and seven or eight more of the horses died. It was a costly pasture.

Thomas Moore pastured his cattle in his stalk field, put them in his corral, seven were dead the next morning. He sent for the State Veterinarian. The veterinarian said it was stalk disease. I showed Thomas the alkali.

Shoemaker's cows got into his sorghum field and it killed several; one cow had cane in her mouth when dead. He said "I am going to find out what killed the cows." I told him I knew what killed them, and I wanted him to find out. He sent a little bunch of the sorghum to Washington. They sent it back and said, "We find nothing poisonous in the sorghum." It was potash in the sorghum that killed the cows, and Shoemaker couldn't see it. They also fed bunched hay which grew on the bottom land, to a bunch of calves. The calves died—several hundred of them. What killed them? Alkali in the hay. I could see it. The boys were driving a bunch of steers, and crossed a river. The steers drank while crossing the river, and the largest steer in the bunch died. The boys wondered what killed him.

Herley Brown had a patch of sorghum about a foot high. It killed quite a number of cattle. I saw it. There was lots of alkali in it and on it.

A little bull got into the corn and ate enough to make him sick. I gave him vinegar and water and then gave him a quart of melted lard. It cured him. This must be given as soon as the animal gets sick, or it will not do any good.

I wrote the Governor of the State, telling him of the little bull. He said they called it stalk disease. He said he would hand my letter over to the State Veterinarian. The Veterinarian said maybe the little bull did not have the stalk disease, and that he probably would have gotten well without medicine.

The Alderly Cow

She had been in the stalk field in the morning. She was bloated. The Veterinarian was called, and he said nothing would save her. He gave her something, but she died by noon. We skinned her, and found her stomach was covered with a white coating of alkali and had spoiled the stomach.

I wonder whether or not I have said enough on this subject to prove that alkali is destructive among stock.

Now as to the Potash: It is a help in fertilizers and in everything that grows. Cattle can get along with a little, but a little too much kills them. I know of a man who has taken strychnine for a year; I guess he is alive yet.

I know of a woman who killed nine husbands with arsenic. She got caught when she tried it on the ninth man.

A fellow poisoned three horses for me; I took one of the stomachs to a doctor; he showed me the arsenic that killed the horses.

Right around this town of Ogallala, the loss of cattle and horses has been more than $2,000 this winter. Reports from counties tell of the losses of stock, caused from eating stalks. The stock is dead before anybody knows about it.

The alkalied stock slobber, then bloat. Give vinegar and water—then melted lard, or any kind

of grease, it is a sure CURE if given soon enough.

Ogallala, Neb. COL. WHEELER.

In the days not so long past, the sale of prescriptions for the cure of founder, nail prick, colic and other ailments of the horse by traveling empirics was common. These prescriptions, usually worthless, seldom sold for less than $5 and often brought $25 and sometimes even higher prices.

Equally extortionate prices were often charged in the recent past for books on the diseases of animals. As an instance, may be cited "The American Farrier and Horse Trainer," by O. H. P. Fancher, of Louisville, Kentucky, written in 1867, and although containing only two hundred pages, but sparsely illustrated and paper bound, sold for more than fifty years at $25 per copy. If such a work is worth $25, or if a prescription for "taking off jacks" was worth $5, a work such as Hutyra & Marek's ought to have a value approximating that of the live stock industry of an average state.

The only wonder is that scientific veterinary books do not cost more (and they are going to cost more—the printer, binder, engraver, and paper manufacturer have seen to that). The cost of the ordinary scientific veterinary work is usually not much in excess of one cent per page, and is inconsiderable, counting the effort required to produce it or the value that the reader may derive from it.

Would some of the curious things that were published in old veterinary works interest our readers? Our library contains a good many volumes published fifty to one hundred years ago, and some that were published considerably more than one hundred years ago. If this would interest you, let us know and we may, from time to time, republish parts of them in the Journal.

National Legislation Affecting Veterinarians

The agricultural appropriation bill as it passed the house places the appropriation for administrative and operating expenses in the tuberculosis eradication work of the Bureau of Animal Industry at $800,000 instead of $500,000 as last year, and makes $100,000 of that sum available to continue the work during the present fiscal year for which the original appropriation has not proved adequate. The appropriation for indemnities for the coming year is made $500,000 instead of $1,000,000, it having developed that this appropriation was far in excess of any demands made upon it. It was the hope of the officials of the department that congress would permit the transfer of some of the balance in the indemnity fund to the administration fund, but this was refused. For the first four months of the present fiscal year the indemnities were only $52,000.

The cattle tick eradication appropriation was put at $681,160, practically the same as last year except that there is cut out $50,000 which had been used in co-operation with the states relation service in live stock and dairy demonstration work.

The appropriation for dairy investigations was reduced from $405,220 to $350,370, estimated as needed for 1921 by the department, by lopping $30,000 off dairy research laboratories and $20,000 off dairy farming and extension.

The appropriation for animal husbandry investigation, $269,180, represents a decrease of $52,780 from last year of which $33,640 was on poultry feeding and breeding and $16,940 for the provision for breeding and maintenance of military horses at Middlebury, Vt., and Front Royal, Va.

The appropriation for scientific investigations in diseases of animals was cut from $124,560 to $106,400, but as nearly $25,000 was cut off the specific appropriation for studies of contagious abortion, this really leaves about $10,000 more for the general work of the station which the committee recommended be used for the investigation of round worms in hogs.

But the big slash in the animal industry appropriation was made by the house itself in the appropriation for hog cholera investigations and demonstrations. The appropriation for the current years was $641,045, and the department estimate called for $30,000 more, to be added to the figure of $163,560 currently used in

control of the manufacture, importation and shipment of viruses, serums toxins, and analogous products. The house committee cut the appropriation to $510,000, $130,000 below the allotment for the current year and although Rep. T. L. Rubey of Lebanon, Mo., endeavored to have it increased to $585,000, the house voted instead to reduce it another $100,000, so that it now stands at $410,000.

The house committee had granted $25,000 of the $30,000 increase in the item for inspection of plants manufacturing serums, toxin and virus, but slashed $112,000 out of the main item for hog cholera control. The debate in the house disclosed a wide feeling against the operations of the federal hog cholera experts, especially in Iowa, the state of Rep. Gilbert H. Haugen, chairman of the committee in charge of the bill. One letter to him from an Iowa veterinarian declared that the serum not only neither prevented nor cured the disease, but on the other hand killed thousands of well hogs and spread disease into healthy herds. He also charged the department with falsifying its reports as to its success in preventing the ravages of the disease, declaring that it reported only 9,180 head lost in Dallas County, Iowa, in 1914, while the bankers' estimate showed 15,967, and the figures compiled by the county auditor from the assessors' figures showed 16,124 deaths. Rep. J. N. Tincher of Medicine Lodge, Kans., also attacked the appropriation as a waste of public money for the traveling expenses of "useless employes" in "soft berths." He declared the representatives of several state agricultural societies had urged the committee to cut out these experts. Rep. W. R. Green of Audubon, Iowa, declared that the whole force of experts did not vaccinate as many hogs as there were in a single township of his district. Rep. J. Q. Tilson of New Haven, Conn., called attention to the fact that the experts had traveled 2,000,000 miles to examine 200,000 hogs, or about 10 miles for each hog. Farmers were praying, him, he said, to deliver them from the annoyance of these men.

Rep. E. S. Candler of Corinth, Miss., pleaded for the Rubey amendment, calling attention to the fact that the number of hogs in the country January 1, 1919, showed an increase of 4,000,000 over a year before and said that instead of decreasing, it was time to increase, appropriations to increase the food supply of the country.

Dr. Galeb R. Layton of Georgetown, Del., who graduated in medicine from Pennsylvania University, said any veterinarian could administer the serum if it were found to be effective.

Rep. Percy E. Quin of McComb City, Miss., explained that the veterinarians were needed to show the farmers how to use the serum in the first place. Rep. E. C. Little of Kansas City, Kans., said the appropriation for serum demonstration was a moneymaker for the country. Rep. John H. Small of Washington, D. C., said the committee should have left the hog cholera appropriation at the $658,000 asked for by the department.

Rep. J. G. Strong of Blue Rapids, Kans., characterized the hog cholera experts of the department as "farming the farmer and taking the money out of his pocket to pay for it."

Rep. T. D. McKeown of Ada, Okla., predicted that cutting down the hog cholera appropriation would make the business of growing hogs more hazardous, reduce the output, and increase the price of pork to the consumer. He favored the Rubey amendment.

Rep. Fred S. Purnell of Attica, Ind., declared that the Tilson amendment which cut it to $410,000, still left $292,000 to carry the demonstration work into any counties where the local veterinarians were not able to administer the serum. Indiana farmers would rather have the local veterinarian than the government expert.

Rep. William L. Nelson of Columbia, Mo., said the farmers of Missouri favored liberal appropriations for hog cholera work and the swine men of the state in convention in his town had passed resolutions for a liberal appropriation.

Rep. Joseph G. Cannon of Danville, Ill., suggested that the only appropriation needed was to police the manufacture of the serum. The local veterinarians, he thought were abundantly able to administer it.

Rep. F. W. Mondell of Newcastle, Wyo., urged that it was time to take these federal veterinarians off the public pay-roll, and characterized their work as "wet-nursing the farmers' hogs."

Rep. J. C. McLaughlin of Muskegon, Mich., said the recent increases in the appropriation had been on a basis of war activities, and it was time to get back to a normal basis. He supported the Tilson amendment.

Dr. U. G. Houck, of the hog cholera demonstration work, says that the cut to $410,000 means that 100 or more veterinarians will have to be taken out of the field force during the coming year.

ARMY REORGANIZATION AFFECTING VETERINARY CORPS

The progress of army legislation seems to be very slow. It must be recognized that the questions involved are so important and far reaching that they require a great deal of consideration from every angle. The views of the War Department must in the last analysis be given every consideration as it is the department affected. The chiefs of the various services making up the army know better than anyone else what the particular departments need to fit into any reorganization scheme.

Again a situation exists probably never before seen in our country. The President and Secretary of War are quoted by the press as approving a universal military training program, the War Department approves of the idea and General Pershing has recommended it in all of his speeches during his present tour of the country.

However, the democratic members of the House have voted in caucus as opposing this training project, while the republican chairmen of both military committees are the strongest advocates of a military training program. Some opinions have appeared in our daily papers to the effect that with this condition existing regarding a military training program, it is not at all improbable that army reorganization will be delayed until after elections in November.

The House Military Committee is still busily engaged trying to draft a new army bill, and this measure will probably be reported out from committee about March 1, 1920.

The Senate Military Committee reported to the Senate their final draft of an army reorganization bill, January 28, known as S 3792 which contains a universal military training program. The section containing the reorganization of the veterinary corps has been amended since the original draft and now conforms much more closely to the ideas of the Surgeon General and should meet with the approval of the veterinary profession. The grade of second lieutenant has been retained, however, and this is a glaring defect. The prospects of getting this grade eliminated appear slight. Section 33 pertains to the medical service, and that our readers may see how the veterinary corps forms a part of the medical service, the entire section is given:

Section 33. THE MEDICAL SERVICE.—The Medical Department established under existing law and regulations shall hereafter be designated "The Medical Service." Such duty or duties as are now required by law to be performed by any officer or officers of the Medical Department, except when otherwise provided for in this Act, shall hereafter be performed by such officer or officers of the Medical Service as the Secretary of War may designate for the purpose. The permanent personnel of the Medical Service shall consist of one Surgeon General with the rank of major general and two assistant Surgeon Generals with the rank of brigadier general, the Medical Corps, the Dental Corps, the Veterinary Corps, the Medical Administrative Corps, an enlisted force, and the Army Nurse Corps.

The Medical Corps shall consist of commissioned officers in grades from first lieutenant to colonel, inclusive, the total number of whom shall approximately be equal to, but not exceed, six and five-tenths for every one thousand of the total enlisted strength of the permanent personnel authorized from time to time by law. Hereafter, commissioned officers of the Medical Corps shall be promoted if in class A as provided in section 44 of this Act, to the grade of captain upon the completion of three years' service, to the grade of major upon the completion of fourteen years' service, to the grade of lieutenant colonel upon the completion of twenty years' service, and to the grade of colonel upon the completion of twenty-six years' service: Provided, That not more than 5 per centum of the officers of the Medical Corps herein authorized shall have the rank of colonel, and not more than 8 per centum shall have the rank of lieutenant colonel.

The Dental Corps shall consist of commissioned officers in the grades from first lieutenant to colonel, inclusive, the total number of whom shall approximately be equal to, but not exceed, one for every thousand of the total strength of the permanent personnel author-

ized from time to time by law. Hereafter commissioned officers of the Dental Corps shall be promoted, if in class A as provided for in section 44 of this Act, to the grade of captain upon the completion of three years' service, to the grade of major upon the completion of fourten years' service, to the grade of lieutnant colonel upon the completion of twenty years' service, and to the grade of colonel upon the completion of twenty-six years' service: Provided, That not more than 2½ per centum of the officers of the Dental Corps herein authorized shall have the rank of colonel, and not more than 5 per centum shall have the rank of lieutenant colonel.

The Veterinary Corps shall consist of two hundred commissioned officers in grades from second lieutenant to colonel, inclusive. Hereafter, commissioned officers of the Veterinary Corps shall be promoted, if in class A as provided for in section 44 of this Act, to the grade of first lieutenant upon completion of two years' service, to the grade of captain upon the completion of seven years' service, to the grade of major upon the completion of fourteen years' service, and to the grade of lieutenant colonel upon the completion of twenty years' service, and to the grade of colonel upon the completion of twenty-six years' service: Providing, That not more than 2½ per centum of the officers of the Veterinary Corps herein authorized shall have the rank of colonel, and not more than 5 per centum shall have the rank of lieutenant colonel.

The Medical Administrative Corps shall consist of commissioned officers in grades from second lieutenant to major, inclusive, the total number of whom shall approximately be equal to, but not exceed, one for every two thousand of the total enlisted strength of the permanent personnel authorized from time to time by law. The officers of the Medical Administrative Corps shall be utilized so far as practicable in the performance of the business and administrative functions of the Medical Service, such as adjutants of medical units, registrars of hospitals, pharmacists, medical property and supply officers, hospital mess officers, and in other positions where the special professional training of medical officers is not required.

Except as otherwise provided herein, officers of the Medical Administrative Corps shall be appointed in the grade of second lieutenant and shall be promoted, if in class A as provided for in section 44 of this Act, to the grade of first lieutenant upon the completion of five years' commissioned service, to the grade of captain upon the completion of ten years' commissioned service, and to the grade of major upon the completion of twenty years' commissioned service.

The Army Nurse Corps shall consist of the personnel as provided for in existing law. Hereafter the members of the Army Nurse Corps shall have assimilated rank as follows: The superintendent shall have the assimilated rank of major; the assistant superintendents, directors and assistant directors, the assimilated rank of captain; chief nurses, the assimilated rank of first lieutenant; and head nurses, nurses, the assimilated rank of second lieutenant; and as regards medical and sanitary matters and all other work within the line of their professional duties shall have and shall be regarded as having authority in and about military hospitals next after the commissioned officers of the Medical Service, and shall wear the insignia indicative of their relative rank in the Army as may be prescribed by regulations.

The enlisted force of the Medical Service shall consist of enlisted men in their appropriate grades, the total number of whom shall approximately be equal to but not exceed six per centum of the total enlisted strength of the permanent personnel authorized from time to time by law: Provided, That not to exceed one thousand five hundred of said enlisted force shall be assigned to duties related to the Veterinary Corps.

The bill also provides in detail for the manner of making appointments in the various branches of the medical department as these provisions are lengthy we omit them.

In another section of this bill provision is made for the president to call into active service with their consent, in time of peace, as many reserve officers as the service requires. Such provision will permit the Surgeon General to supplement the 200 veterinary officers herein authorized with as many from the reserve corps as will be required, providing veterinarians are willing to serve in time of peace and for such length of time as their services are required.

If Congress does not enact an army reorganization measure, it will be necessary for a temporary measure of some character to be passed to permit the army as now organized to function. There is no law, other than war measures, which permits of a Motor Transport Corps, Chemical Warfare Service, Construction service, Tank Corps, Finance Corps and the Veterinary Corps as now organized.

It will be interesting news to most of our readers to learn that the army never

functioned with the limited number of permanently commissioned officers allowed the Veterinary Corps by the National Defense Act of June 3, 1916. This act authorized a total of 118 permanent veterinary officers in grades from 2nd Lieutenant to Major. It would give the army today, if the corps had its full quota, 7 Majors, 16 Captains, 21 First Lieutenants, and 74 Second Lieutenants. For years before the National Defense Act was passed and up to May 18, 1917, when it was superseded by the Overman Act of May 18, 1917, there were from 250 to 300 veterinarians rendering service in the army. The complete records are not available but the following data speaks for itself:

There were four classes of men doing this work and the service was one of individuals without the necessary co-ordination or supervision that the corps now has:

1.	Veterinarians, Regular Army, Cavalry and Feld Artillery	42
2.	Veterinarians, Quartermaster Department	137
	Animal Inspectors	6
	Meat Inspectors	6
	Contract	125
3.	Veterinarians, B. A. I. (Loaned for Meat Inspection)	11
4.	Veterinarians, National Guard, Cavalry and Field Artillery	81
	Total, as far as records are available	271

From the foregoing it can be seen that the officers asked for by the Surgeon General as necessary for the work of an organized Veterinary Corps is not an increase over what the army had prior to the war and during the time the act of June 3, 1916, was in effect. It is a consolidation of the veterinary officer under one head, in one organization, capable of rendering a professional service to the Government which will justify the expenditure of the taxpayers' money.

As soon as the House Military Committee reports its army bill to the House for action, it will then be known what consideration has been given the Veterinary Corps. The army that the House Military Committe has decided upon will not exceed 280,000 enlisted and 18,000 officers.

To provide for a veterinary service capable of: (1) supervising all measures to maintain the health of the animals; (2) evacuating disabled animals from horsed organizations and caring for sick, including operation of veterinary hospitals; (3) inspecting meats, meat food products and dairies and dairy products; and (4) giving instruction in military animal management, including all its branches and horseshoeing when required, there will be required a Veterinary Corps consisting of not less than 200 officers for the regular service and not to exceed 125 veterinary officers from the reserve corps to be called to active duty with their consent in time of peace as long as their services may be necessary and approximately 2,500 enlisted men in the authorized grades.

Should Congress decide not to pass a military reorganization bill but to revise the National Defense Act to permit the army to function as now organized, the Veterinary Corps will require in this revision the same number of officers and enlisted men as above stated and the officers should be in grades from First Lieutenant to Colonel, inclusive. The National Defense Act at present authorized grades from Second Lieutenant to Major only and no enlisted men.

The need for reorganizing the Veterinary Corps at this time to meet the requirement of a professional service as a part of the Medical Department is not in any way dependent upon a universal military training program nor a large army. It is simply that the provisions of the National Defense Act do not meet the present needs and for whatever sized army Congress decides upon, it is incumbent upon the Medical Department to have a Veterinary Corps that can function in every sense of the word. With an army of the present size it cannot function with only 118 commissioned officers supplemented by reserve veterinarians who will not have rank of any kind but receive the pay and allowances of Second Lieutenants. It cannot function without enlisted men. Enlisted personnel can be provided, however, by increasing the allowances of the Medical Department enlisted strength by one per cent and allowing this additional one per cent to be assigned to the Veterinary Corps for duty.

It is expected that the legislative committee of the A. V. M. A. will be able to keep the profession fully informed as to what action is being taken by Congress on army legislation in so far as it affects the Veterinary Corps.

NEWS OF THE VETERINARY CORPS. U. S. A.

From the Office of the Surgeon General

The following transfers and reassignments have been ordered:

1. Major A. F. Donovan, U. S. A., on expiration of leave, directed to proceed to Chicago, Ill., for instruction in meat inspection. Major Donovan's orders to proceed to Vladivostok for duty as Chief Veterinarian. American Forces in Siberia, were revoked by the War Department after orders had been issued withdrawing these forces from Siberia.

2. Major G. A. Hanvey, U. S. A., from duty in the Surgeon General's Office to Honolulu, Hawaiian Department, for duty as Department Veterinarian. Major Hanvey has been on duty in the S. G. O. as officer in charge of the meat and dairy hygiene section, and this section has been placed in charge of Major G. H. Koon, U. S. A.

1. Captain R. A. Kelser, V. C., on duty at the Army Veterinary Laboratory, Philadelphia, Pa., is authorized to make not to exceed three trips per month to Front Royal, Remount Depot, Va., for the purpose of conducting experimental work with infectious diseases at that station.

2. Captain E. J. Cramer, from Chicago, Ill., to Ft. D. A. Russell, Wyo., for duty as Post Veterinarian.

3. Captain G. W. Brower, from Chicago, Ill., to Camp Dodge, Remount Depot, Ia., as the Veterinarian.

4. Captain V. B. Wright, from Remount Depot, Ft. Keogh, Mont., to Chicago, Ill., meat inspection.

5. Captain F. R. Harsh, V. C., from Camp Lee, Va., to Camp Furlong, Columbus, N. M., as Camp Veterinarian.

6. Captain H. Z. Homer, V. C., from Camp Bragg, N. C., to Chicago, Ill., for instruction in meat inspection.

7. Captain L. E. Case, V. C., upon the arrival of Major G. A. Hanvey at Honolulu, is relieved from duty as Department Veterinarian and directed to proceed to the United States and report to the Adjutant General for instructions.

8. Captain B. C. Bridges, V. C., from Remount Depot, Ft. Keogh, Mont., to Camp Stephen D. Little, Nogales, Ariz., as Camp Veterinarian.

9. Captain R. P. Kunnecke, V. C., from Remount Depot, Ft. Keogh, Mont., to Camp Lewis, Wash., as assistant to the Camp Veterinarian.

1. First Lieut. M. F. Severovic, V. C., from Remount Depot, Camp Travis, Tex., to Camp Grant, Ill., Remount Depot.

2. First Lieut. C. W. Mould, V. C., from Ft. Huachuca, Ariz., to Chicago, Ill., for instruction in meat inspection.

3. First Lieut. L. G. Weisman, V. C., from Chicago, Ill., to Ft. Huachuca, Ariz., for duty as Post Veterinarian.

4. First Lieut. J. G. Conroy, V. C., from Camp A. A. Humphreys, Va., to Camp Harry J. Jones, Douglas, Ariz., for duty as assistant to the Camp Veterinarian.

5. First Lieut. A. D. Martin, V. C., from Chicago, Ill., to Camp Lee, Va., for duty as Camp Veterinarian.

1. Second Lieut. H. I. Stanton, V. C., from Camp Harry J. Jones, Ariz., to Ft. Huachuca, Ariz., as assistant to the Post Veterinarian.

Retirement

Lieut. Colonel Richard H. Power, V. C., was recently retired, with the rank of Captain which he holds in the regular army, as a result of disability incurred in line of duty. Colonel Power, as a veterinarian of Field Artillery prior to 1916, resigned from the army and stayed out for about a year, but with this exception has served continuously since 1903. He holds an enviable record for service. He was stationed at Ft. Riley, Kans., at the time of the organization there of the present Cavalry School then known under the name of "The School of Application for Cavalry and Field Artillery." He was made an instructor in Hippology when the school was organized in 1903 and served as such until 1905. While there in co-operation with veterinarian Alexander Plummer he compiled the first army textbook known as "The Army Horse in Accident and Disease," which was the textbook used by the students detailed to the school. He saw service in the Philippines, Canal Zone, and was a member of the expeditionary force that landed at Vera Cruz, Mexico, in 1914. While with the expedition at Vera Cruz he sustained an injury to his knee which is understood to have been the direct cause of his disability. He was one of the first officers to see service in France and served as Medical Supply Officer in charge of veterinary supplies; later with the First

(Continued on Page 132)

Queries and Answers

Mild Case of Azoturia With Fatal Termination

I would appreciate information on the following case: Black five-year-old Percheron mare, 16 hands high, weighing 1,500 pounds, in good condition but not fat, about four months pregnant doing light work continually.

The mare was taken sick about two miles from the house and the owner called saying she was in a very bad condition. Upon arrival the mare seemed well. Temperature, pulse and urine normal; feces a little dry and hard.

Diagnosis: Spasmodic colic.

About two hours later I was again called, the owner saying the mare was down and unable to rise. I found the mare a little uneasy and slightly bloated. Sedative, physic and antiferment were administered, and the owner was to report as to her condition the next morning.

The next day he called and said the mare would eat and drink but could not get up. She was slung but would not stand. Urine was again drawn and found to be dark red. On palpation, the muscles were normal and the patient resting easy. Temperature and pulse normal.

A consultation was called and the consulting veterinarian at once diagnosed the case as hemoglobinemia, basing his diagnosis on the urine. The patient was given oxalic acid treatment without benefit. She ate and drank and seemed normal in every way except as to her urine, until she died three days later. On postmortem, nothing abnormal was found except that one kidney was slightly enlarged.

The owner at the time was feeding corn which was slightly worm-eaten. May it not have caused poisoning? But, if so, why were there no pathological chances? If it were azoturia is it not likely the mare would have gone down while driving her two miles home?

Are not pregnant mares and mares with foals less apt to have hemoglobinemia than other horses?—M. M.

REPLY by DR. DE VINE: The history of this case indicates that it was azoturia. The fact that it did not progress rapidly for the first hour or two after it had been diagnosed as spasmodic colic is not at all unusual. In the larger horses and particularly those in high flesh, that are taken with pain upon exercise, we should always be on the watch for azoturia, and after we have diagnosed azoturia or suspected it, no matter how slight the attack, our prognosis should always be guarded, because experienced men know that these lighter attacks often result as this one did, suddenly become worse and terminate fatally.

Fortunately, the cases that show great pain and pronounced knuckling, perhaps by hot anodyne applied to the hardened muscles and the eliminatory treatment followed by internal anodynes such as lobelin sulphate, often yield surprisingly to treatment, and in the course of two or three hours stand firmly and give no further trouble.

We must not rely too much upon the urine for diagnosis in mild cases, during the real early part of the attack. If in doubt as to diagnosis, one should return in two or three hours and if azoturia is progressing, it will be found that the urine has then begun to be characteristic.

Slings are rarely of any advantage in azoturia. On the other hand, some cases might need just the support given by a sling, but as a rule, use of slings is bad practice. It is likewise common knowledge that the azoturia case should not be moved, if it is at all possible to give it care where found. If down, the simple dragging of an animal from one part of the barn to another not infrequently brings on the closing chapter of the case.

I would not suspect the corn spoken of as having much to do with the cause in this case. As to the likelihood of the mare having gone down in driving two miles; animals when not extremely fat are often driven much farther before they show any signs of the disease. In light horses, we not infrequently find the disease developing after they have been driven eight or ten miles.

Pregnant mares are probably not less susceptible to azoturia than non-pregnant mares.

A CASE OF SEPTIC INFECTION

On August 25th, I was called to see a Jersey cow presenting the following symptoms: weak pulse, stilty gait, as though she were a wooden cow; constipation; groaning or grunting when she moved; milk almost dried up from one milking to another; refused to eat and just moped around. The weather was dry and hot and the pasture was burnt. The history was that the cow had been served several times at different places at her estrual periods, which came regularly. The last time she had been taken to a Jersey bull, and the owner thought the bull had injured her, as she was knocked almost down and this trouble came on several days later.

Treatment: One and one-half pounds of magnesium sulphate was given at one dose, followed by two-ounce doses of tincture of nux vomica three times daily. The cow never recovered her usual flow of milk but her appetite became good and she appeared to be well so far as the owner could see.

On October 28th I was again called to see her. The symptoms were the same as at my former visit, except that bloat was present and the heart was weaker and faster and respiration shallow and quick. I told the owner I didn't think she would get well as I suspected a foreign body was responsible for the trouble but couldn't locate anything definite. I left several doses of medicine for the owner to give. He gave her one dose and when he went out again in about fifteen minutes she was dead. There was a sticky discharge from the nostrils before death.

Postmortem: The lungs and heart seemed all right except that the lungs looked as though they had been scalded. The abdomen was next opened and on incising at the navel, a whitish pus shot out followed by a thick liver-like mass. This pus was between the panniculus and abdominal muscles. On the inside of the abdomen were several cysts filled with a thick, creamy pus with very disagreeable odor. The entire abdominal floor gave evidence of peritonitis and the bowels and stomach adhered to the floor, walls and diaphragm. These adhesions were hard to break down. The abscess on the abdomen extended over quite a large surface and contained at least a gallon of pus. The abdominal organs were normal except for the adhesions. Why was it this cow did not become pregnant? She had had only one calf and had been served by various males. The owner has several other cows that also fail to become pregnant. There has been no contagious abortion on the place. Is it possible the Bacillus abortus is causing this trouble?—O. F. F., Va.

Reply by Dr. De Vine: The fact that this cow in question did not become pregnant and that the owner also has several others that have not become pregnant, probably has but little to do with the symptoms that this cow exhibited during life, and the postmortem lesions found after death.

The symptoms and postmortem findings indicate that this animal suffered a septic infection. It is possible that it was of an origin which gave rise to the acute symptoms. The suspicion that the animal was injured at the time of service is not without reason, and may primarily have had to do with the lesions which later developed.

It is peculiar, but nevertheless a fact, that cows frequently suffer septic infection and abscess formation to a considerable extent without the least physical evidence whatever. The question of sterility may or may not be associated in this particular case with the septic condition.

We frequently have metro-peritonitis, followed by chronic peritonitis, and abscess formation. The peritoneal lesions and the abscess formation throughout the body is often far more pronounced in such an animal at the time of death with the metritis becoming chronic or subsiding, than are the uterine changes. Per-

haps the uterus has reached a condition that might be styled fairly normal, or would appear fairly normal to one who had paid no special attention to this character of infections and it would be easy to believe that the uterine adhesions were simply an extension of the peritoneal inflammation and changes, when as a matter of fact the reverse was true. The conditions that enter into the causes of sterility are numerous, and I hope to touch upon this subject in an article that will probably appear in the Journal in the April number.

MALIGNANT CATARRHAL FEVER IN A COW

On September 4th I received a call to see a sick cow. I found the patient to be a red cow, four years old, in a pasture by herself. She lay on her right side as she was supposed to have been all night; temperature 104° F.; frothing at the mouth; eves dilated; mucopurulent discharge from both eyes, with a white film over one eye which caused total blindness in that eye. A film covered half of the other eye. The animal would moan at the slightest pressure on the eye which seemed to be very sensitive. There was also a white scum over the tongue and excoriation of the gums, lips and buccal mucous membrane. There was a continuous twitching of the muscles of the body, and the cow seemed very sensitive to flies, etc. When the animal was raised on her sternum, the head would turn to the right side by a complete arching of the neck. Six years before, the farmer lost a cow with exactly the same symptoms. She died in eight to ten days. Last fall a spring calf was fed in the morning, turned out to pasture and returned in the evening presenting the same symptoms as described above. It also died in eight to ten days. When I saw this last cow, it was on her eighth day of sickness. She was up until the night before I arrived, when she went down. We killed her, and on autopsy found the lungs resembled those of a horse with heaves—pale and frothy. The heart was normal in appearance; retropharyngeal, brachial and subscapular glands normal. In the abdominal cavity everything seemed normal, also the various mesentric glands. The bladder showed some inflammation. The animal had never been vicious but to some extent seemed afraid of people. Macroscopically the blood was slightly darker than normal. There was no stiffness to indicate tetanus. It was diagnosed as plant poisoning. Was I right? —A. L. R.

Reply by Dr. C. H. Stange, Ames, Ia.: It seems that the disease described was probably malignant catarrhal fever. It may be that some poisonous plants would cause these symptoms, but we have no knowledge of such cases. It is a good description of malignant catarrhal fever, which, however, is not very common in this part of the country.

CAUTERY TREATMENT FOR WIRE-CUT

September 10, 1919, I called to see a young horse injured by a wire cut, and found the case as shown in the illustration. I have tried various remedies without visible results. Other veterinarians have been called, but the case remains the same. I would be pleased to receive any suggestions relative to the reduction and cure of this leg.—J. R. R., Pa.

Reply: Regarding the wire cut that has gone wild, if I were treating the case I should remove all exuberant granulation with an actual cautery under com-

Ugly wound resulting from wire cut, which refuses to heal.

plete anesthesia, if necessary. Following this, I should use a chlorazene wash, followed by a desiccant, astringent enough to keep down all granulation except around the margins of the wound, where I should apply a powder very lightly.

FRACTURE OF HUMERUS WITH SPONTANEOUS RECOVERY

The patient, a mule, was reported as going slightly lame on the left leg for two days before I saw it. Examination of the limb from the hoof up disclosed nothing out of the ordinary. The animal walked normally, but trotted with a slight limp. Pulling the leg forward and backward elicited sensitiveness. I was at a loss as to a correct diagnosis, but as the animal was doing up and down hill work, I gave as a diagnosis, sprain of the caput muscles, and told the owner a few days' rest with warm fomentations would soon put him right, but to my surprise two days later the owner phoned me that the mule could not move at all.

At this stage the case presented the following symptoms: enormous swelling in the region of the shoulder—painful on pressure; inability to place any weight on the leg. Lancinating pains, were caused by holding the leg up; expression anxious; breathing rapid. On manipulation the scapula seemed intact, and the swelling did not extend below the elbow joint. I changed my diagnosis to fracture of the humerus, and gave a very unfavorable prognosis.

The owner, being one of the hard-headed, nothing-to-be-lost sort, insisted upon my giving some treatment, although he felt the chances were poor.

The animal was left to itself in a loose stall. Hot fomentations were applied to the limb every hour and the following lotion applied three times daily after fomenting:

Plumbi acetatis	
Spts. camphorae	
Tr. arnicae	a a ℥I
Fl. Ext. belladonnae	℥ss
Aqua ad	℥XXIV
Ft. Lotio	

Two bottles of the lotion were used to allay the pain. I saw the animal several times but could see little improvement. He lay down most of the time, and the effort he made to get up when I urged him was marvelous. He would put out the sound limb and protect the injured limb by trying to abduct it, and with one spring he would be up. After eight weeks he managed to place a little weight on the leg. I thought he might have had a deformity and told the owner so, but after three and a quarter months, the leg was straight and he is now working again.

Do you think my diagnosis correct? I have often wondered about it but could reach no conclusion. The results, however, are exceptional. The peculiar interest in the case lies in the fact that it was five days before alarming symptoms developed—that is, the animal was lame two days before I saw it and two days afterward. Could it be possible that the bone was merely fissured at the time I saw it, and some muscular effort to regain his equilibrium after a slip caused the separation (a complete fracture), or did a kick or blow on the shoulder cause it? I am inclined to believe that some injury had been sustained subsequent to my first visit, notwithstanding that the animal was not let loose in a corral or pasture where it could have been kicked by other animals. It might have happened when the animals were being led to water, and the grooms, to shield themselves from blame, did not tell the owner.

I have seen a few similar cases, but I have always destroyed them. Fractures of the tibia in cattle unite quite readily without treatment and without resulting deformity. Just leave them alone to lie down or move about.

Naturally, the owner of the mule is elated over the result and says he has "one on me."

ERNEST F. JARDINE.
Government Veterinary Surgeon.
St. Kitts, B. W. I.

REPLY: The onset and course of the ailment would indicate that your diagnosis of fractured humerus was correct and the result—recovery—does not preclude such a diagnosis being correct.

The fracture probably occurred prior to the first time you saw the case. It was probably quite oblique and the ends of the bone were held in position for a time by the strong periosteum. It is not uncommon for the periosteum of the

bones of the leg that stand more perpendicular than the humerus to hold for five to even seven or eight days after fractures before giving way.

Recovery from such a fracture might reasonably be expected in an animal that took such good care of itself. Many horses would not do this, and a false joint or an excessive deposit of bone would prevent recovery.

Unless the shortening of the humerus was great, we would not expect it to shorten the leg. The angle of the elbow joint would be increased to compensate for a moderate amount of shortening of the humerus.

We do not see where the owner has "one on you." The veterinary bill and the cost of feed and care during the months of idleness must approximate the value of the mule, and in addition to this, he had to stand at least an equal chance of losing the animal and the feed and the veterinary bill, as well.

PRESENT STATUS OF LIVE STOCK INDUSTRY

(Continued from Page 98)

cholera, Texas fever, and blackleg. It is to be hoped that during the next few years your research work on contagious abortion will result in the discovery of practical methods of coping with this serious menace to the cattle breeding industry. You are to be further congratulated upon the successful beginning of a nation-wide campaign for the eradication of tuberculosis in cattle and hogs. Many of us have never realized the seriousness of this problem—the heavy annual losses that have been caused by condemnations for tuberculosis, the great prevalence of the disease among dairy herds and the real hindrance it has been to the development of our live stock industry. It has been subtle and insidious in its progress, likened to a smoldering fire of wide expanse, causing great damage, unobserved to a large degree. Fortunately we are awake to the needs of aggressive methods in preventing its further progress. We now have an appropriation of $1,500,000 for the year, provided by our National Congress with approximately a total of $2,000,000 made available by the various states of the union. This has made possible the building up of a great machine by which we have been able to begin in a most encouraging way a cleaning up process which is certain to prevent an annual property damage many times the cost of eradication. The percentage of animals retained and condemned for tuberculosis, as revealed by the reports of the Division of Meat Inspection, is the best barometer of conditions with respect to the prevalence of this disease. Recent reports from the Division of Meat Inspection show reduced losses and indicate that a good start has been made in eradicating tuberculosis.

There has never been shown a better spirit of co-operation between breeders and the veterinary profession in combating tuberculosis than now exists in the United States. A sentiment among breeders is rapidly developing in which the pride and satisfaction of having a herd free from disease is quite as great as that of having animals of superior quality. It is not only a matter of sentiment, but to a still greater degree a matter of business sagacity. Our southern country which is fast developing into a great live stock section is demanding seed stock from herds entirely free from tuberculosis. In our dealings with South America, that portion of our Western hemisphere which perhaps offers the greatest possibilities in live stock development, it will be to our distinct advantage to supply to them not only cattle of the desired type, but those which are free from tuberculosis. It is in this that we may, if we are wise, take advantage of conditions which now exist in Great Britain, our chief competitor.

There is a great future for the live stock industry in the United States. We are no longer dependent upon other countries for improvement in our herds and flocks by the infusion of foreign blood. We have within our own borders some of the best breeding herds in the world. We have men of unusual skill and intelligence making every effort possible to bring about improvement not only in quality of product but in sanitary conditions surrounding the industry. In this improvement there should be the fullest co-operation on the part of all identified with the business. In our eagerness to eradicate disease we should also keep in mind other phases of development. Our effort should be to perform the is to be hoped that this great leak in our live stock industry may be effectually stopped in a comparatively few years.

DEPARTMENT OF

CATTLE PRACTICE

Edited by JOHN FRANCIS DE VINE, D. V. S.

Chronic Endometritis

THE term chronic endometritis, as with acute endometritis, if we limit the term to changes occurring in the endometrium only, would be entirely too technical to be practical clinically, since the condition is probably usually more or less complicated with chronic metritis. Unfortunately the pathology and symptomatology is not sufficiently understood; however we recognize structural changes principally in the endometrium, which is evidently the result of some previous active irritant or infectious processes.

We might profit by the opinion of gynecologists who hold that in the human family a noticeably large percentage of cases of chronic endometritis have a history of previous abortion, but that the endometrium seems to be peculiarly immune to what might be termed a permanent infection of gonorrhea. This would appear to substantiate what we have stated in discussing the cause of acute endometritis and its similarity to gonococcus infection in the human family. Likewise the lack of permanency of gonorrheal infection in the human family is in harmony with the findings of Schroeder and Cotton[1]: "That the Bang organism is not recoverable in the uterus but for a short period after it ceases to be gravid," notwithstanding that structural changes of the endometrium may and do take place that are observable for a variable period.

It is my opinion that chronic endometritis probably can truly be said to be a postpartum condition, at least I have never found a condition in a heifer that has never conceived that I could diagnose as chronic endometritis. While admitting that this point is debatable, it would appear that as in the case of transitory gonococcus infection in the human family we might also have a transitory infection of the endometrium of the non-gravid uterus by abortion organisms, but conception and abortion seem necessary prerequisites for the establishment of chronic endometritis, and that it occurs only after an abortion or at the end of an apparently normal gestation that is followed by a distinct inflammation which does not entirely subside, but rather becomes chronic, in many cases retarding indefinitely the normal involution of the uterus. The nature and duration may vary from so mild a form as to be scarcely determinable clinically, to a form so extensive as to involve more or less of the muscular walls and is manifest by slight secretions, particularly at the time of estrum, and a feeling of increased density or flabbiness of the uterine horn or horns, detectable on palpation. This information often proves valuable when examining heifers, the breeding history of which indicates them as not having conceived and as having irregular periods of estrum. The veterinarian not infrequently is able to inform the attendant that the heifer in question that is said to have never conceived, has already conceived and aborted, basing his diagnosis on the presence of chronic endometritis. We have proved to our satisfaction by later acquiring a more definite history of some cases that such a diagnosis is entirely permissible and reasonably reliable.

Workers do not seem to be agreed as to the role chronic endometritis plays in sterility, its frequency and its treatment, some believing that it is one of the frequent and potent causes of sterility and that it is rather easily diagnosable by fix-

[1]Report United States Livestock Sanitary Assoc., 1916, p. 119-20.

ing the cervix with forceps and carrying it back into the opening of the vulva so that the cervix and endo-cervix are examined; that in chronic endometritis the cervix is usually plainly affected, showing increase in size and that the normal pink mucosa suffers an inflammatory injection in a varying degree and exhibits an abnormal hypersecretion. Others are of the opinion that these symptoms are not always plain and detectable and that ordinarily we do not get reliable information regarding endometritis by rectal examination, since the normal uterus varies greatly in size, form and thickness, as well as in the physiological changes occurring in its size and tension caused by ovulation.

It is my opinion that both of these views have merit but that both are carried to the extreme. I do not consider simple chronic endometritis nearly as common a cause of sterility as some other pathological conditions, and further when it is present if not complicated or too severe, it yields more readily to such mild treament as massaging than do some of the other morbid changes. I believe that most of the cases are diagnosable to the trained fingers, by palpation, but that all cases are not positively diagnosable either by palpation or by fixing the cervix with forceps and carrying it back into the opening of the vulva. The cases that so pronouncedly involve the cervix should, in my judgment, be classified under cervicitis, and I so classified them in my previous article.

The importance of training the sense of touch to aid in diagnosis of chronic endometritis and tubular trouble becomes at once apparent when we have had sufficient evidence in the herd and on the killing floor, of the distinct asymetry in the size and density of the normal uterine horns of different cows; age, number of pregnancies, etc., causing a wide variation as well as the marked temporary changes occasioned in the uterus by estral congestion. A point that writers seem to have neglected to place emphasis on and which is of much importance, is that with abortion, as in most microbic diseases, the virulence and extent with which it appears in a herd, has an important bearing on the structural changes that will occur in the generative organs and the resultant disasters left in their wake.

My experience has been that in herds where the virus has aborted many cows irrespective of age, physical condition or period of pregnancy, the changes in the generative organs have been wider in range and more severe in character.

It is in these herds where acute cotolyedonitis and endometritis exist in a severe form and if neglected that chronic endometritis most frequently prevents subsequent satisfactory implantation, constituting sterility or imperfect implantation to later constitute abortion.

Diagnosis

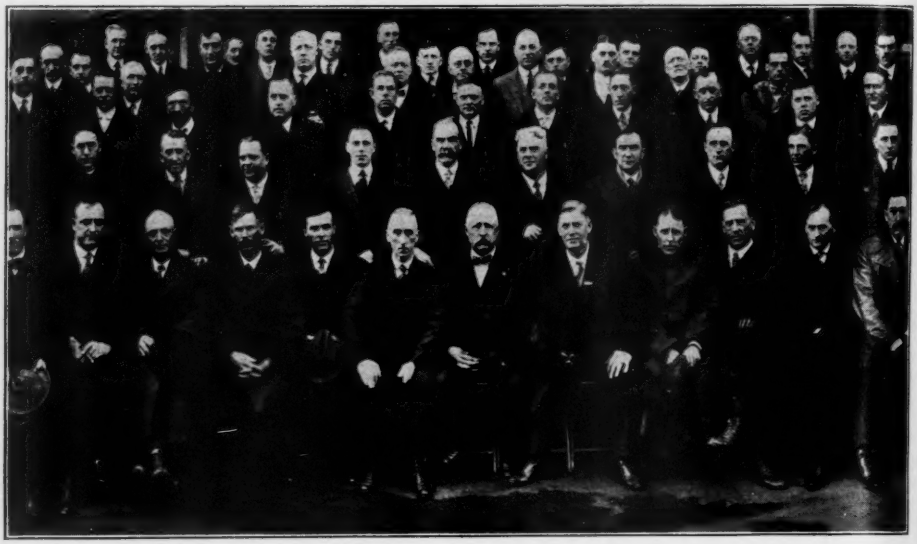
For clinical purposes the simplest method for differentiating is to style as chronic endometritis, those cases where there is sufficient thickening of the fundus or horns to indicate that an inflammatory condition exists, which may be manifest either by a flabby organ without tone, or conversely, by one that is noticeably too rigid. The absence of any exudate, with the possible exception of a slight exudate during the period of estrum, coupled usually with an enlarged and firm cervix, serve to indicate chronic endometritis. As previously stated when the cervical changes are more pronounced than the endometritis it is then best classified as chronic cervicitis involving the endometrium. Its differentiation from chronic metritis rests principally on the absence of severe uterine changes and purulent exudate.

Chronic endometritis, as with other chronic inflammatory conditions, originates from a more or less acute septic inflammation of the uterus, or from a mild persistent irritation, and is apt to be accompanied by more or less pathological change in the ovaries and tubes since it serves as a passage way for these infections to travel from the endocervix forward.

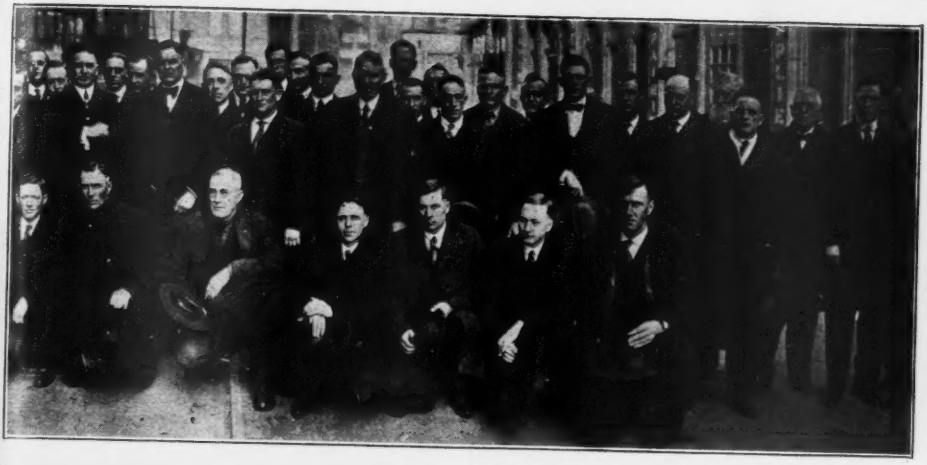
Some workers believe that irrigating the uterus is the necessary treatment for the relief of chronic endometritis; others believe that massaging the organ and correcting the pathological condition of the tubes and ovaries, that so frequently exists with chronic endometritis, is the logical way to relieve it.

While there is no question but what irrigating the uterus and mechanical cleansing with Lugol's or saline solution are of

advantage and in some cases necessary for the relief of this condition, I am nevertheless quite convinced from experience that crushing cysts, removing false corpora lutei, massaging the ovaries and uterus are of positive value in toning up the uterus, thereby enabling it to throw off inflammatory exudates and hasten its physiological return, and I resort to irrigation only in those cases that do not yield to massage, the percentage of which is very small.



MEMBERS AND GUESTS IN ATTENDANCE AT THE THIRTY-SECOND ANNUAL MEETING OF THE IOWA VETERINARY MEDICAL ASSOCIATION, DES MOINES, IA., JAN 13-15, 1920.
(Continued on next page.) For report of this meeting see page 25.



DEPARTMENT OF

SWINE PRACTICE

Edited by A. T. KINSLEY, M. Sc., D. V. S.

Swine Fetuses Desired

Contagious abortion in swine is becoming wide spread, and during the past year has taken a heavy toll of pigs in several states, in some sections as high as thirty per cent of the pig crop. Little is known concerning it, and it is important that investigations be pushed as rapidly as possible. I will appreciate it very much if readers will send me aborted pigs (one from a litter). It is essential that these pigs be packed in borax and shipped within a few hours of birth, otherwise decomposition will interfere with the laboratory and cultural examination. Send pigs from all aborted litters whether the abortion be due to infection or other causes. Mail such history as is available when the pig is shipped. Address correspondence and ship specimens to Dr. A. T. Kinsley, New Center Building, Kansas City, Mo. You will be promptly advised as to our findings with any suggestion we can give regarding your cases. Reports of our findings will be published from time to time in these pages.

Loss of Suckling Pigs

IN 1919 as high as 30 per cent of the spring crop of pigs was lost in some sections of the country. These extensive losses were due to a variety of conditions, the most important of which were: (1) abortion; (2) scour; (3) parasitic pneumonia; (4) swine plague; and (5) goiter.

Abortion is becoming a serious menace to the swine industry. As a rule, so far as investigations have been conducted, it seems that the major portion of the losses from abortion occur during the period of pregnancy when the fetuses are insufficiently developed to live. It is probable, however, that infection may exist in sows in which there is sufficient resistance to prevent the accident of abortion and the pigs thus be carried to full time, but be diseased when farrowed and die within a few days thereafter. These latter losses probably have not been attributed to abortion.

The specific cause of abortion has not yet been determined, and the prevention of losses of pigs from this disease must therefore be based upon quarantine of the aborting sows until such time as discharges from the genital organs cease. In addition to quarantining, aborted fetuses and all soiled bedding should be removed and burned and the pens in which the abortion occurred thoroughly cleaned and disinfected. Individual farrowing houses and separate pens for each sow and her litter are to be recommended. Breeders should be urged to divide their brood sows into small lots, maintaining not more than five or six, or at most ten breeding sows in any one pen.

Pig scour may be intimately associated with abortion disease in the sow. In addition it has been found that digestive derangements resulting in diarrhea may be caused by the B. suisepticus, B. suipestifer, B. paratyphoid, B. enteritis and colon bacillus, and possibly also by some other microbian agents.

The symptoms of scour in pigs are well known and need not be discussed at this time. The practitioner should bear in mind that scour in pigs occurring in the first days of their life is rapidly debilitating, and unless immediate relief be given the loss of the pig is practically certain. Pig scour may also be of dietary origin and it is not, of course, an easy matter to determine the

specific cause of this disturbance in these animals. If all of the pigs nursing one sow show evidence of the disease at the same time, and the pigs of other sows, with which they are associated, remain healthy, the chances are that the source of the disturbance has been the food of the pigs, and if they are only a few days old, the primary source would be the milk of the sow. If some of the pigs from different litters develop the disease simultaneously or in close succession, the chances are that the disease is of microbian origin.

The breeder should be advised as to better methods of feeding brood sows. They should be given wholesome food and of limited quantity at the time of farrowing and for a few days thereafter. In many instances, extensive loss in pigs results from overfeeding the sows. When the scour is found to be of an infectious origin and the infection is of such a nature that a preventable biologic can be used, the practitioner should advise such agents, particularly for the healthy exposed pigs. Intestinal antiseptics may be given; however, it is difficult to administer drugs per orum to pigs, and great care must be exercised, otherwise, medicamentous pneumonia may be produced.

Parasitic pneumonia has been found to be a very potent cause of loss of pigs. The losses incidental to this cause occur in pigs from ten days of age up to two or three months of age. The causative factor of the major portion of the parasitic pneumonia in suckling pigs is the larval form of ascaris or the intestinal round worm. The life history of this parasite has been described previously, suffice at this time to say that when the ova are ingested they hatch in the digestive tube, the larvae perforating the tissue, some of them ultimately gaining access to the lung where they produce a nodular or embolic pneumonia. When a large number of these larval parasites gain access to the lung, death usually results. Even a limited number usually produce sufficient disturbance to prevent the affected pig from developing as it should. This loss in pigs is absolutely preventable and the prevention depends upon a thorough elimination of the parasites from the intestine of the brood sow prior to farrowing. In addition to the elimination of parasites, it is essential that the sow be placed on clean non-infested premises for farrowing. If this precaution be taken, it is probable that from ten to fifteen per cent of the losses of pigs will be prevented.

The medicament for elimination of round worms need not be discussed, as all practitioners are familiar with the vermifuges and vermicides that are available.

The fourth cause of pig losses is swine plague. This disease has been previously discussed in many periodicals and at practically all veterinary association meetings, and we are assuming that practitioners in general are familiar with it. Investigations demonstrate without question that this disease is a factor in the loss of small pigs. It is a preventable disease and losses from it can be diminished or entirely eliminated.

In some sections of the country goiter has been responsible for the loss of many young domestic animals. Just why this condition develops has never yet been determined but the supposition is that there is insufficient iodin in the feed. This condition is not recognized until the time of birth, when it is manifested by a thickness in the throat region and by the absence of some or all of the hair. The condition is readily preventable by the feeding of potassium iodid or some form of iodin to the pregnant animals. It seems justifiable that when this condition has been found on a farm one season it would be advisable to feed pregnant animals some form of iodin the following breeding season to prevent further losses.

From inquiries received and from personal investigations, it appears that in some instances, at least, practitioners have not taken the initiative and instructed the breeders concerning problems like these. We believe that all breeders will appreciate information that will prevent losses and will be glad to pay for such information or such procedure as is necessary to insure a larger percentage of living young.

The Journal will be glad to receive inquiries, suggestions and criticisms at any time regarding these problems.

INTERESTING CASES OF ABORTION IN SOW

I am sending you a specimen of blood from a sow suspected of having infectious

abortion; also two vials containing pus, No. 1 being from the vagina of the same sow from which the blood was taken; No. 2 from a sow showing similar symptoms. I am also sending the placental membranes of a sow which aborted at two and a half months. These sows belong to a pure-bred herd of Poland Chinas.

Within the past three weeks, five sows have aborted. One of the first symptoms noted by the owner was a desire to urinate frequently. Within a day of two there was a whitish discharge from the vagina, sufficient to keep that region in a sticky condition. A week or two after the discharge started, the sows came in heat. In these five sows, abortion has taken place from the first month and a half to the second month of pregnancy.

This herd is fed on a concrete floor, which for the past month has been very icy and slippery. The owner has noticed several of the sows fall on the floor, spreading their legs in opposite directions. He thinks that this may have been the cause of the abortion. In the oldest case, there is a copious discharge from the vagina after three weeks.

I would be glad if you would examine these specimens and ascertain, if possible, if this trouble is of an infectious nature. As the owner is planning to hold a public auction soon, I wish you would wire me the findings of your examination.—L. J. K., Ill.

REPLY BY DR. KINSLEY: We are glad to have your query. We are interested in obtaining some good material from abortion in swine, and shall examine your specimens with interest. Should there be another abortion on this farm, we would be glad if you could make arrangements with the owner to get one of the aborted fetuses or the placental membrane, or both, pack them in borax and send them to us. From this and other correspondence we are certain that a disease of an infectious nature is producing abortion in swine, and we are anxious to do all in our power to identify and control the disease.

After receiving the specimens, two or three days will be required to make the examination, after which we will report to you promptly.

We should like to know, particularly, whether there is any abortion among cattle on the premises where these hogs are kept; whether they receive by-products from a skinning station; or whether or not there is any history of cattle abortion existing on the place.

(Further report of this case will appear in the next issue.)

PHOTOGRAPHS OF POISONED ANIMALS WANTED

It is important that I have photographs of animals poisoned or suspected of being poisoned. Therefore, will not the readers of the Journal send me such photographs with statements regarding the plants which caused the poisoning.

The writer is preparing a new edition of the "Manual of Poisonous Plants," and such material will prove useful for this work. Full credit will be given. Address communications to L. H. Pammel, Ames, Ia.

VETERINARY CORPS NEWS

(Continued from page 120)

Army School and then as Corps Veterinarian, 3rd Army Corps and prior to his return to this country was promoted to the grade of lieutenant colonel. He also served as Veterinarian of the Le Mans District. Upon returning to the United States he was assigned as Veterinarian, Remount Depot, Camp Pike, Ark., and served in this capacity until his retirement.

OFFICERS VETERINARY CORPS, U. S. ARMY

Temporary Rank

Authorized by Congress in Bill Providing 18,000 Officers Until June 30, 1920

	On Duty Jan. 11, 1920.	On Duty Feb. 11, 1920.
Colonels	0	0
Lieutenant Colonels	4	3
Majors	35	35
Captains	73	73
First Lieutenants	148	142
Second Lieutenants	76	72
Totals	336	325

VETERINARY CORPS, REGULAR ARMY

Permanent Rank—Act June 3, 1916.

	On Duty Feb. 11, 1920.
Majors	7
Captains	16
First Lieutenants	21
Second Lieutenants	47
Total	91

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Value of Hospital Facilities in Veterinary Practice

With the continued development of our profession, higher standards of efficiency are being enforced and improvement in service demanded. These conditions can best be met by establishing a hospital.

Formerly the general practitioner administered what treatment he could at the home. In many cases, however, home facilities are sadly inadequate, and many practitioners have been forced to improvise some kind of hospital facilities to meet the need. This has been especially true as regards small-animal practice in large cities.

In recent years, pets have been receiving more and more attention and owners are demanding the best care possible. In order to meet this situation and to eliminate a constant source of embarrassment to myself, as I felt that I was not, and could not, give my best care in the home, I determined to open a hospital. At first I utilized a small building in the rear of my residence, but this soon proved inadequate, both as to size and arrangements for caring for general and contagious diseases. I then began to make plans for a larger building, especially arranged for medical, surgical and contagious diseases, particularly of cats and dogs. I will review briefly the general plans of this hospital.

The building is of brick, two stories high, 32 ft. 10 inches x 34 ft. 9 inches, complying fully with all the requirements of our city building code. It comprises all the elements of convenience, sanitation and isolation.

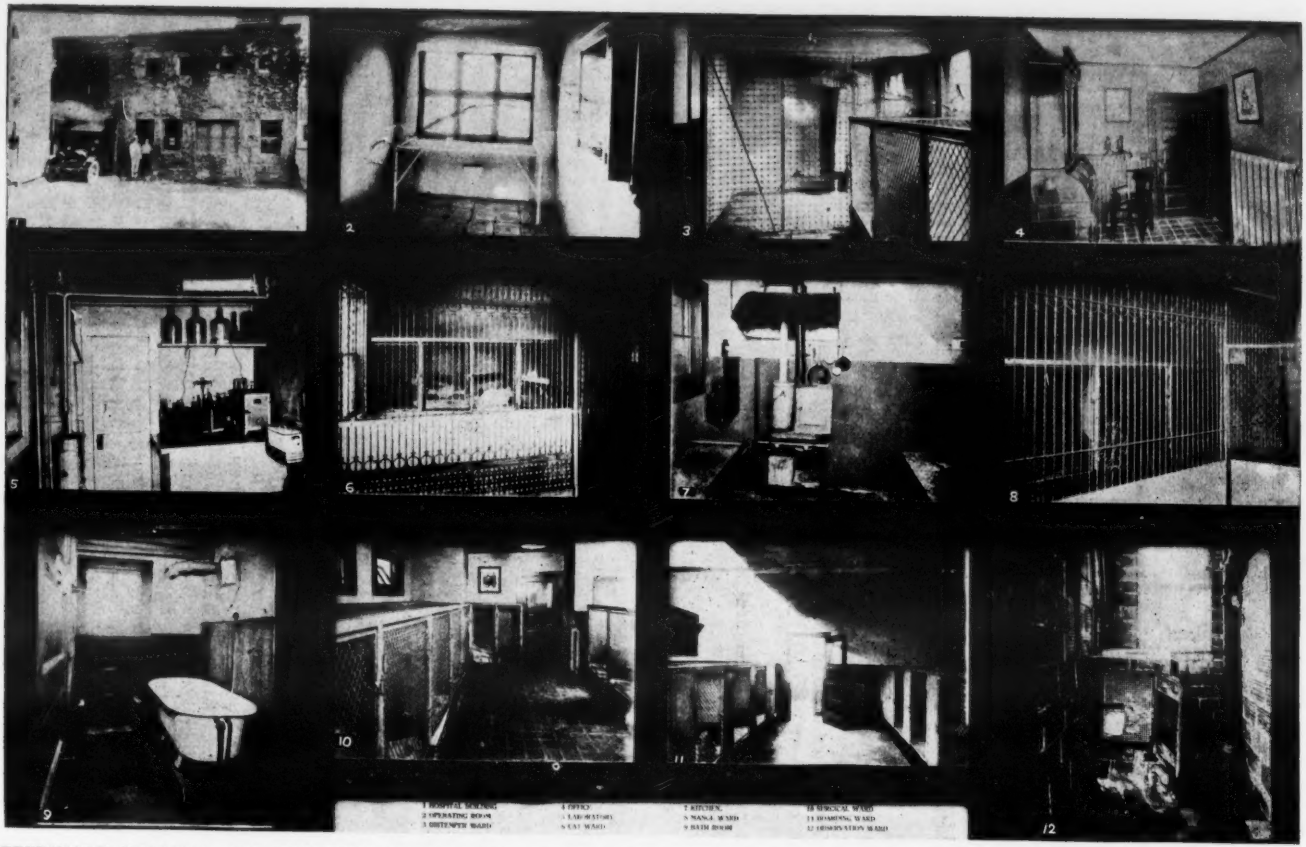
The building is equipped with a hot water heating system throughout, the water being heated in a combination gas and coal furnace. Electric lights and hot and cold running water add to the convenience of the various rooms. All are outside rooms, insuring good light and ventilation. The floors are of tile, concrete and marble. The cages are stationary, single tiers, of metal construction, with concrete floors, which are elevated twelve inches above the floor level; each cage bottom is provided with individual screen-trapped sewer connection, making it possible to wash each cage separately. The floor in each ward is also supplied with a trapped drain.

There are exercising runs all within the building. The windows are all screened, making it impossible for anyone to tamper with the animals or for animals to escape. Individual feed and water dishes of various designs are provided for the separate wards.

The animals are bedded with clean newspapers, which after being once used, are burned in an incinerator, the heat being utilized for kiln-drying bread.

For convenience, the office is centrally located in the main building so as to be easily accessible from all parts of the hospital. It is 8 ft. x 14 ft. The woodwork is of dark oak; the rough plaster walls are cream color. The floor is of tile. Electric call bells and speaking tubes communicate with all parts of the

*Presented at the 37th annual meeting of the Ohio Veterinary Medical Assn., Columbus, January, 1920.



VETERINARY HOSPITAL AND BOARDING KENNEL, EXCLUSIVELY FOR DOGS AND CATS, OWNED AND OPERATED BY DR. A. E. CUNNINGHAM, CLEVELAND, O.

1. Main hospital building. 2. Operating room. 3. Distemper ward. 4. Office. 5. Laboratory. 6. Cat ward. 7. Kitchen. 8. Mange ward. 9. Bath room. 10. Surgical ward. 11. Boarding ward. 12. Observation ward.

building. The drug room adjoins the office.

The operating and consulting room, 7 ft. 8 in. x 11 ft., adjoins the office. It is finished in white; tile wainscoting; rough plaster walls; flat paint finish; marble floor. The equipment includes instrument cabinets, sterilizer, wire-screened covered sink with hot and cold running water used in the preparation of animals for operation. A large triple window with frosted glass furnishes a soft light, and a large electric light overhead with a wall extension socket furnishes ample light for night work.

The operating table, shown in the picture, is 6 ft. long x 30 ft. wide and 3 ft. high. The frame work is of angle iron. The top of the table is of heavy grill one-inch mesh wire, hinged at one end of the framework. Under the grill is a pan of the same size fastened to a framework, which slopes toward the center and opens into a small pipe onto which a pail is hung to catch any left-overs. The advantage of this table is that animals, large or small, can easily be restrained, simply by snapping a hobble into any of the meshes, and during the operation the patient is lying on a dry surface, which adds to the comfort of the surgeon.

The ward for contagious diseases, 8 ft. x 16 ft. 8 in., is located in an isolated section of the building. To the right some of the cages may be seen, 3 ft. 2 in. x 3 ft. 2 in. x 3 ft. 9 in. To the left is a grillwork partition, back of which is a tanbark exercising run for dogs of this ward. As this room looks out upon adjoining property, the windows are fitted with frosted glass.

The observation ward, 7 ft. 8 in. x 11 ft., is used for the observation of suspected rabid cases. The chamber is provided with two doors, the inner one of heavy wire, is shown closed. Ample space at the bottom of the door provides for the admittance of food and water and for cleaning the cage. In destroying an animal, the outer airtight door is closed and a poisonous solution passed down a tube into the chamber. When sufficient time has elapsed, a valve pipe on the top of the cage is opened and the fumes pass out through the roof of the building.

The bath room is equipped with a tub and toilet. The tub is mounted on a concrete base twelve inches high, making it convenient for washing animals.

The kitchen, 7 ft. 6 in. x 7 ft. 6 in., as shown in the picture, contains a two-hole gas range with a canopy. On the stove is an odorless cooker, provided with a long curved pipe, somewhat resembling a periscope, extending to an opening in the chimney. A deep white enamel slop sink, bread box, refrigerator, and cupboard are included in the equipment of this room.

The laboratory, 3 ft. 6 in. x 6 ft., is provided with good north light. The equipment includes a microscope, with high and low-power lens, incubator, sterilizer, staining fluid, culture media, test tubes, etc. Sufficient material for a small laboratory.

The surgical ward for dogs and cats, 17 ft. 3 in. x 14 ft. 6 in., has a tile floor and is well lighted from three windows. The ward is equipped with twelve cages, 3 ft. 9 in. x 3 ft., and a tall medicine cupboard divided into small compartments, numbered to correspond with the cage numbers.

The picture of the cat ward was taken from the exercising run looking through the grillwork that separates it from the ward. A row of cages may be seen in the background. To economize floor space in this ward, the cages were elevated 30 inches. There are seven cages in this ward, 1 ft. 8 in. x 3 ft. 2 in. and 3 ft. high.

In the boarding and maternity ward, 20 ft. 6 in. x 15 ft., there are 13 cages 3 ft. x 3 ft. 9 in. x 3 ft. 9 in. This room is especially well lighted and ventilated from overhead windows. The maternity cages have solid doors to avoid possible annoyance; all other cages have grilled doors.

The mange ward is 10 ft. 2 in. x 7 ft. 6 in. The picture was taken in the exercising room looking through the grill work. The cages are 3 ft. 9 in. x 3 ft. 6 in. x 3 ft. 9 in. high.

The hospital comprises 40 cages and there is no possibility of overcrowding. It can easily be expanded to 50 cages, which is a sufficient number to keep one physician busy.

This building has been in service for three years, and I have found it satis-

1. Main hospital building. 2. Operating room. 3. Distemper ward. 4. Office. 5. Laboratory. 6. Cat ward. 7. Kitchen. 8. Mange ward. 9. Bath room. 10. Surgical ward. 11. Boarding ward. 12. Observation ward.

factory for all kinds of cases and economical to maintain. There has been a steady growth in the number of admissions, which I believe is due to a growing demand on the part of the owners to hospitalize their pets, on account of the superior advantages of diagnosis and treatment.

The development of hospitals has paralleled specialization. We must anticipate further specialization. Indeed we must anticipate the development of group practice. This can be realized to the best advantage only when the group controls a hospital.

Such a hospital as I have described serves admirably for a small-animal practice. With groups of physicians specializing, such a hospital could serve as a unit either for cats and dogs alone, or for surgical or medical cases alone, depending on the group preferences and their plan of organization.

TEN SUCCESS MAXIMS

1. Good education.
2. Good common sense, and personality.
3. Integrity, by this is meant, treating your client as you would want him to treat you.
4. Thrift—the habit of saving and getting ahead. This gives you a good reputation for paying bills promptly.
5. Don't be hide-bound, narrow-minded, and confine yourself to a livery stable. Get out, mix and mingle with others and glean new ideas.
6. Realize your limitations, and don't claim too much.
7. Watch your clients, cull out the deadbeats and let the other fellow have them. Don't spend a dollar making four bits.
8. Keep the best equipment you can afford. Make an effort to own your home. If you are married and you have been fortunate to pick out a good, saving, thrifty wife, it helps you 60 per cent.
9. Just be a regular fellow. Having a little education don't make a little tin god out of you. People will find that out.
10. Be a consant reader of everything pertaining to the good of the profession, your bank account and yourself. Spend a hundred dollars a year for books, magazines and so on, and you will make it all back in easy money.

E. T. Baker.

Moscow, Idaho.

VETERINARY CONDITIONS IN BRAZIL

Dr. G. A. Roberts, formerly with the North Carolina Agriculture Experiment Station, at West Raleigh, went to Brazil a few months ago, as was announced in our pages at the time, to study diseases of cattle under the direction of the Rockefeller Foundation.

Writing from his present address, in care of the Secretary of Agriculture, Sao Paulo, Brazil, South America, Dr. Roberts says that the notice of his trip published in the Journal several months ago has resulted in his receiving a large number of letters of inquiry regarding veterinary conditions in South America, and asks that we remind correspondents that the postage to Brazil is 5c instead of 2c and that twice the deficiency in postage is collected when the letter is delivered. That is, 6c is collected from him for each letter received bearing only a 2c stamp.

Dr. Roberts states that conditions for private veterinary practice are not good in Brazil at this time, that missionary work needs to be done. He expects, however, to see them change for the better in a few years. He would remind those contemplating going to Brazil that Portuguese, and not Spanish, is the native language. Spanish, of course, is spoken in all other South American countries.

From what he can learn at Sao Paulo, there are other parts of South America where the live stock development has been going on for a much longer time, particularly Argentine, where veterinarians are doing well in practice.

By far the most serious disease of cattle in Brazil is foot-and-mouth disease. It affects cattle, sheep and swine, and many suckling animals die. Others develop a secondary infection of the feet, causing the hoof to shed and granulating tumors to develop. Such animals get about with the greatest difficulty and fatten very slowly if at all.

An attack of foot-and-mouth disease does not confer immunity, and probably on this account, no immunizing serum or other product has been found. Dr.

Roberts and his confreres, however, are endeavoring to develop a simultaneous serum and virus injection to give animals on the appearance of the disease in the herd, the intention being to produce a mild infection in all of the animals and eliminate the disease in a short time.

Notwithstanding the ravages of foot-and-mouth disease and other diseases, many fortunes are being made in Brazil in live stock.

In certain low-lying countries, horses die by hundreds and thousands from posterior paralysis—*peste da cadieras*, as the Brazilians call it, or *mal de caderas*, as it is called in the Spanish-American countries, due, as our readers know, to the *Trypanosoma hippicum* (Darling).

"Bichos" (parasites) are quite numerous in Brazil. A very serious one affecting all animals, even man, but more severe in cattle, is the Berne fly, a species of warble fly.

This shows the sutured incision following intestinal anastomosis, performed at the Terre Haute Veterinary College for the sole purpose of demonstrating its possibilities in hernia with constricted bowel, producing enteritis. This operation was described on page 31, January issue.

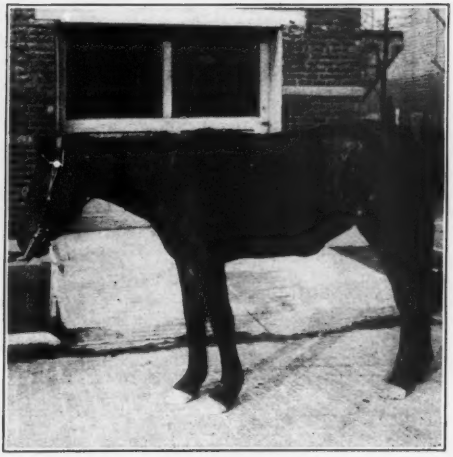
PARTURIENT PARESIS IN A COW

On May 25th, 1919, I was called to see an eight-year old cow. The owner stated that she had been giving a large flow of milk, very rich in butter fat, since October, 1918. She was in good flesh and was bred in December, 1918, due to freshen in September, 1919.

The following symptoms were noted: the rumen was engorged with grass and somewhat tympanitic; she had a very weak staggering gait; temperature 98.4° F.; pulse very weak; 20 very deep respirations per minute; there was twitching of the muscles of the sides of the neck and flanks; she fell to the ground and was unable to arise, lying with her head to the left side, the muzzle resting close to the udder.

The bloat increased rapidly. I passed the rumenotomy trocar and injected at least twenty gallons of a warm alkaline antiseptic solution. The milk fever symptoms seemed to increase. The cow became unconscious and lay flat on her right side, completely paralyzed. Temperature 97° F.

The udder was immediately inflated with air, and I injected two ounces of hypocamphor subcutaneously. In about two hours the cow sprang to her feet and walked into the stable, looking for something to eat. She made a complete recovery within a few days and gave birth to her calf in September.



Showing appearance of sutured incision tenth day after operation of intestinal anastomosis at Terre Haute Veterinary Hospital, described in the January issue.

On October 6th I was called to see the same cow in regard to her milk. The quantity of milk was normal, but the quality was poor. When strained, a thin oily deposit was left. Only a very thin layer of cream rose, and on the surface several dark brown, oily spots, the size of a quarter, or smaller, appeared. After the cream stood twelve hours or more, a peculiar disagreeable odor was present, and the cream could not be churned.

The following treatment was administered: One ounce 40 per cent formaldehyde in one pint raw linseed oil was given once daily for three days. I then gave the following:

℞	Black Sulphide of antimony	℥III
	Sulphur	
	Fennel Seed	℥ V ss
	Caraway Seed	
	Juniper berries powdered aa	℥ V
	Sodium chloride	1 lb.

This was powdered, and mixed and one heaping tablespoonful given with each feed of grain. After about ten days the milk was normal again, and the cow was apparently in a healthy condition.

Will somebody kindly suggest a possible cause for the milk fever at that time, in this particular cow? I might state that she was feeding on the very best of blue-grass pasture and had been for several weeks previous.

B. H. Olds.

Conneaut, Ohio.

FORAGE POISONING IN A HEIFER

I was called to see an 18-months-old, pure-bred, shorthorn heifer, suffering from forage poisoning.

The animal was running around in a circle from left to right; coordination faulty, especially in the hind quarters. When she attempted to go to the door she would run into the wall if not assisted. She would start circling around whenever anyone would go about her and continue until nearly exhausted. The pulse was weak, temperature almost normal; pupils much dilated; appetite poor; feces and urine scanty.

Treatment: One and one-half pounds epsom salt followed by the following prescription for several days:

Fld. extract: Nucis vomicae.
Fld. extract: Ergotae aa ℥i.
Sig. Two teaspoonsful every four hours.

In a few days I substituted gentian for the ergot and kept the treatment up for a week or more, the dosage being the same as for the other. The patient seemed to grow weaker from day to day until she finally got down and was unable to rise and the owner becoming discouraged, dug a hole and was going to kill and bury her, but when he went to kill her she seemed a little better, so he gave her another chance and persisted in the treatment, the result being that the heifer made a slow recovery and has been doing well ever since.

O. F. Foley

Bridgewater, Va.

TIME-SAVING IN TEMPERATURING HOGS

The following method which I introduced in the Fort Worth yards is now used exclusively. When there are several hundred hogs to be vaccinated it saves the work of three or four men. The technic is as follows: Fasten a thermometer to one end of a string about twelve inches long, and to the other fasten a small curling iron. Insert the thermometer and fasten the curler to the hair on the hog's back so that the string is drawn tight enough to hold the thermometer in place. Even though the hogs crawl over each other the curler will not be rubbed off, and if the thermometer drops out of the mouth, the string prevents it from falling to the floor and breaking. These curlers can be purchased at any ten cent store for a dime, and with them one man can operate as many as five or six thermometers at a time.

J. T. Bays.

Fort Worth, Tex.

MEETING OF STATE RENDERING ASSOCIATION CALLED

A meeting of the Indiana State Rendering Plant Association was recently called at the offices of State Veterinarian Northrup in Indianapolis, to consider the betterment of the equipment and service of the plants throughout the state. The magnitude of an effort to systematize this work will be realized when it is considered that there are more than 100 rendering plants in operation in Indiana.